



## *Destination Green*

ICAO Symposium on Aviation and Climate Change, "Destination Green", 14 – 16 May 2013

# **An Introduction to Market-based Measures**

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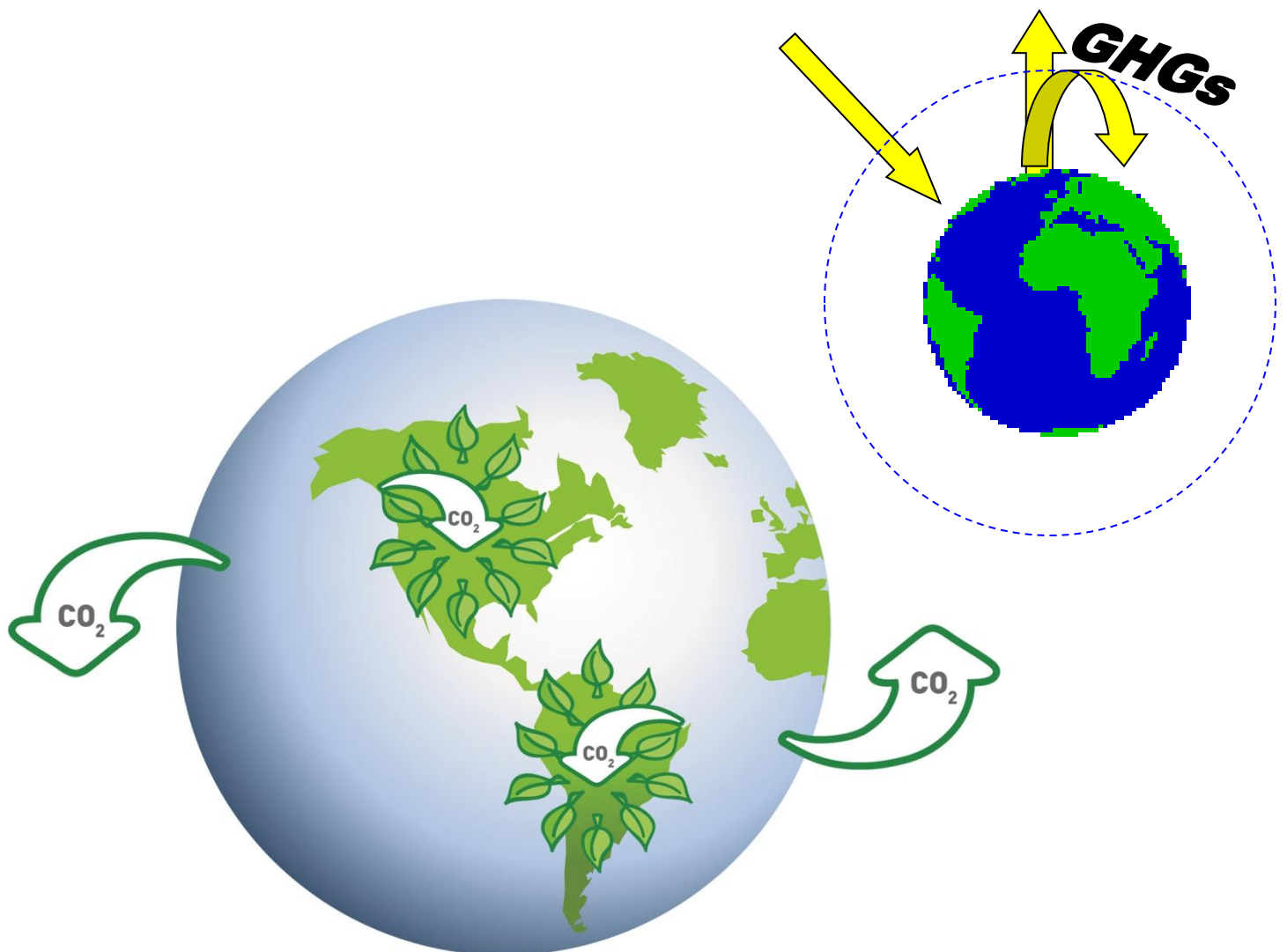
# Outline



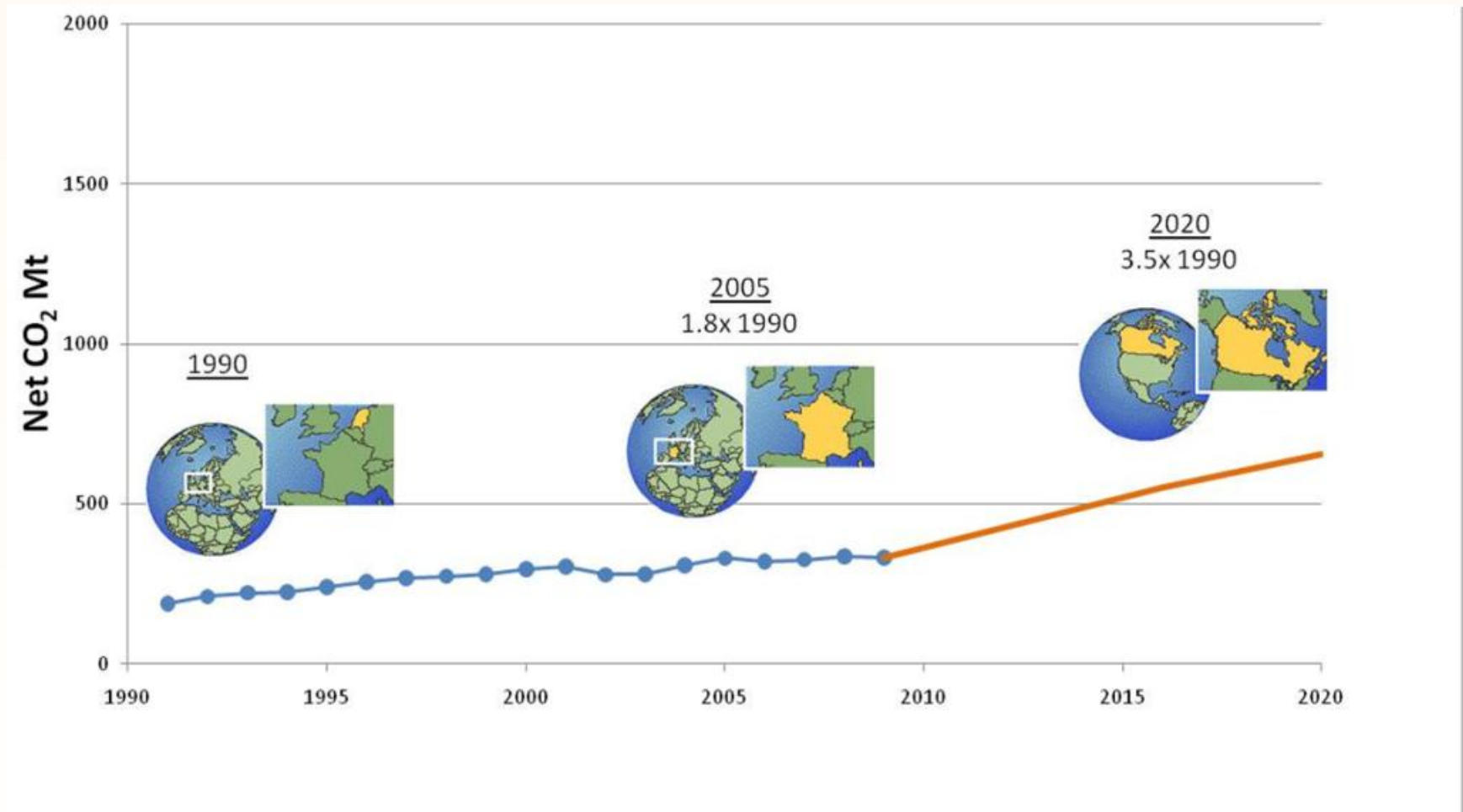
- Climate Change Emissions
- Why Market-based Measures?
- What is a Market-based Measure?
- Taxes and Charges
- Offsetting and Emissions Trading
- Work of ICAO



# Climate Change Emissions



# Why MBMs

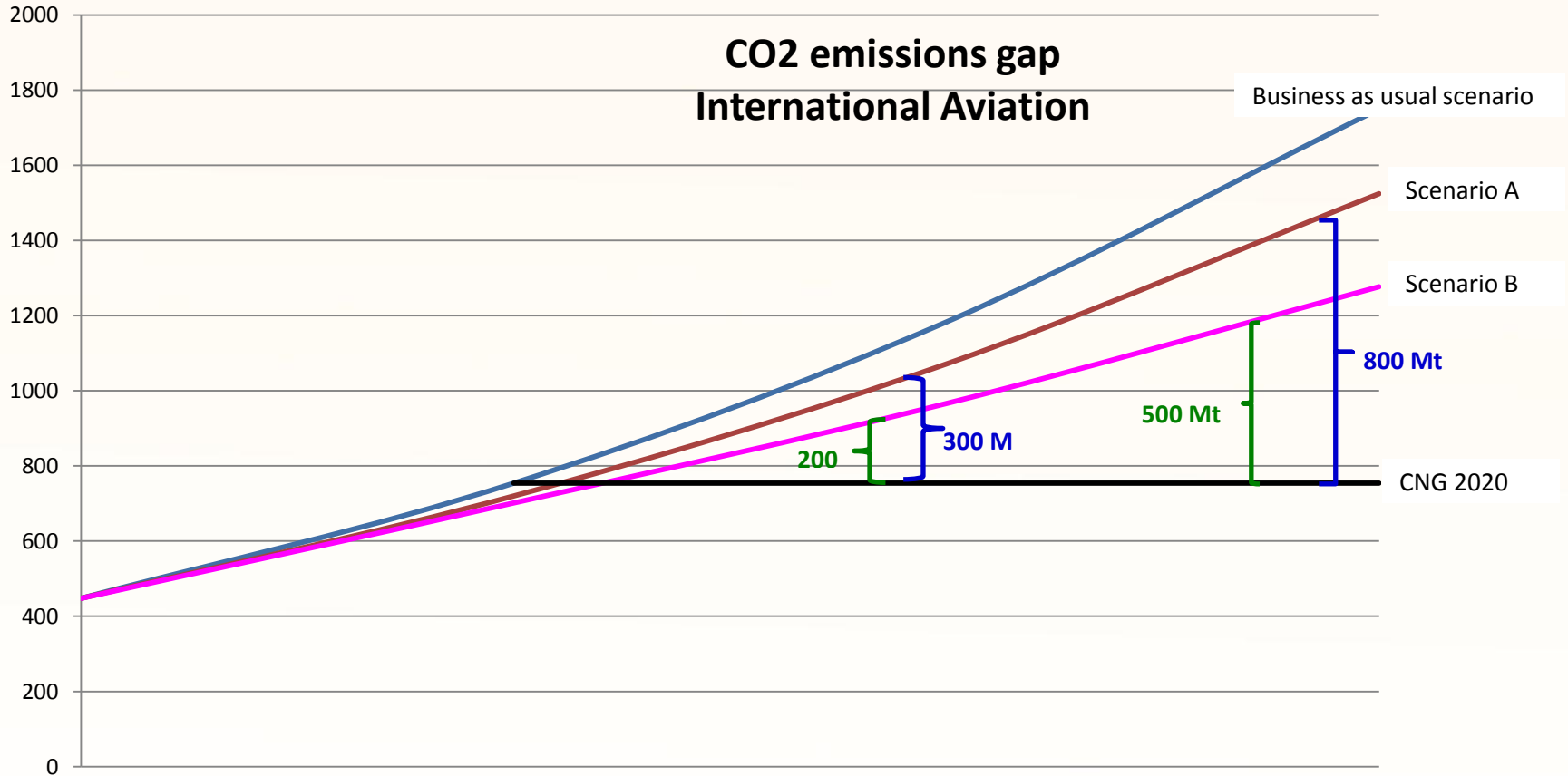




# Emission Forecasts



## CO2 emissions gap International Aviation





# Types of MBM - Definitions

- Taxes & Charges
- Offsets
- Emission Trading



# Taxes



- ICAO has developed unique definitions that are set out in our policies and guidelines.
- A tax is a levy that is designed to raise national or local government revenues that are generally not applied to civil aviation in their entirety or on a cost-specific basis.
- Chicago Convention, Article 24 (customs, fuel)



# Charges



- A charge is a levy that is designed and applied specifically to recover the costs of providing facilities and services for civil aviation.
- Chicago Convention Articles 15 (airport and navigation services)





# Offsets



- Emissions in one sector or location are offset by reducing emissions in a different sector or location
- Standard measurement used is one tonne of CO<sub>2</sub>, or CO<sub>2</sub> equivalent, equates to one emission unit or credit
- These emission units can be bought, sold or traded
- There are quality assurance measures to assure actual reductions

# Offsetting - How It Works (3)



Major rehabilitation and retooling create emission reduction opportunities

Offsetting acts as incentive to reduce emissions

Ability to create offsets creates a carbon market



## How It Works (3)

\$30 Million to upgrade to Coal

\$50 Million to upgrade to Natural Gas (NG)

\$20 Million additional investment

Coal emissions = 10 Mt/year

NG emissions = 5 Mt/year

5 Mt/ year = credits

\$50 Mil. ÷ 5 Mt = \$10/credit



## How It Works (3)

Carbon Credit Cost = \$10/tonne

Carbon Credit Sale = \$5/tonne

\$5 x 5 Million credits = \$25 Million

Cost to add NG = \$20 Million

Potential Profit = \$5 Million



# Offsetting & the Carbon Market



- Supply and Demand for Credits
- International Aviation & the Carbon Market
- Encouraging New Technologies



# Aviation Offsetting Scheme



- Established sector baseline – eg. carbon neutral growth from 2020
- Participant share of baseline
- Reporting of emissions
- Participant decisions – offset, emission reduction



# Emissions Trading – Cap & Trade



- A cap is placed on absolute emissions eg. carbon neutral from 2020
- Allowances are created for each tonne of carbon below the cap
- Participants are allocated a portion of the allowances based on their share of total emissions
- Allowances can be bought sold and traded



## ETS – How It Works (2)



- Participants included under the scheme monitor and report their emissions
- The number of allowances equal to the emissions generated are surrendered
- Those capable of making emission reductions relatively inexpensively can do so; and
- Surplus of allowances can be sold or banked for future years





## ETS – How it Works (2)



- The ETS creates an incentive to reduce emissions
- Participants who face higher costs to reduce emissions also have an advantage
- An ability to leverage investment is created



# MBM - Considerations

- Linked to targeted reduction level
- Low cost reductions for the aviation sector
- Flexibility for market conditions (unlike tax)
- Funds flow out of the sector
- Administration of the scheme



# ICAO's Work on a Global Scheme



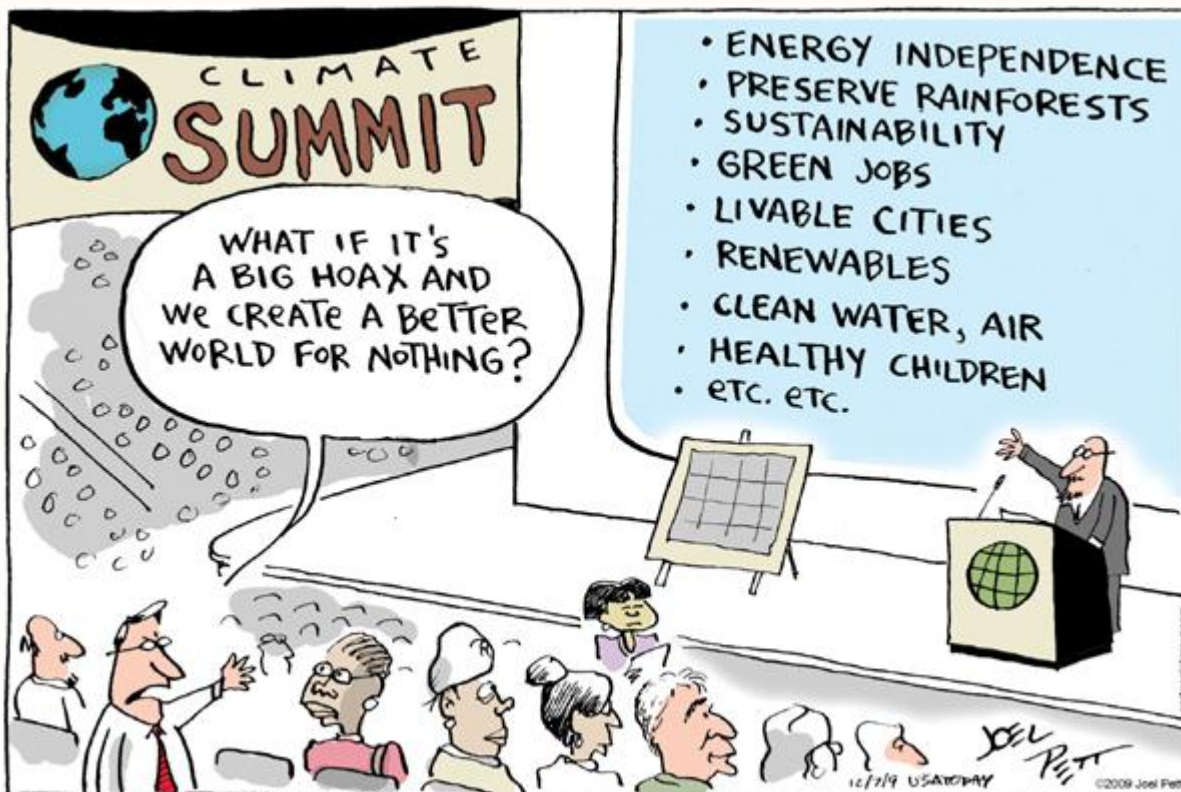
- Exploring feasibility
- *De Minimis* Study
- Design Features
- Quantitative Analysis
- Findings



# Summary



- International aviation greenhouse gas emissions are expected to continue rising
- MBMs are intended to support the lowest possible cost to reduce emissions in aviation, and all sectors
- MBMs benefit sectors facing higher reduction costs
- There many factors that need to be assessed when considering MBMs for international aviation



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