

Aviation and Emissions Trading ICAO Council Briefing

29 September 2011

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Agenda

- Climate change and aviation
- EU climate change policy
- Aviation in EU climate policy
- Functioning of Aviation ETS
- Impacts of Aviation ETS
- Frequent questions
- Outlook



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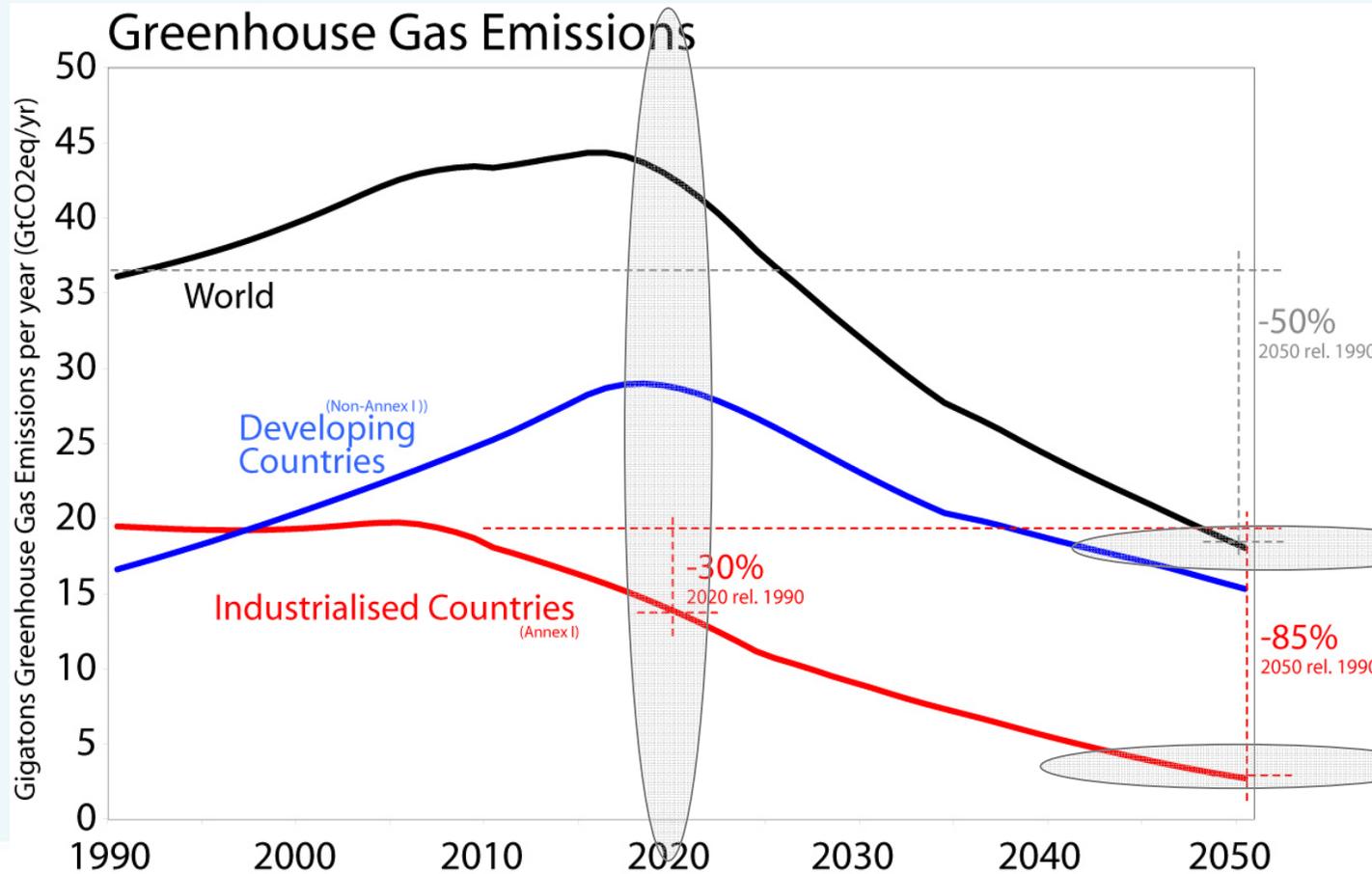


There is global agreement on the need to reduce emissions

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- At the UNFCCC in Cancun in December 2010, 191 countries agreed objectives to reduce greenhouse gas emissions:
 - keep the global average temperature rise below 2°C
 - encourage all countries to reduce emissions, in accordance with responsibilities and capabilities
 - ensure international transparency of the actions
 - review progress
 - mobilise the development and transfer of clean technology

Meeting this objective requires significant reductions in emissions



Global -50% below 1990 by 2050

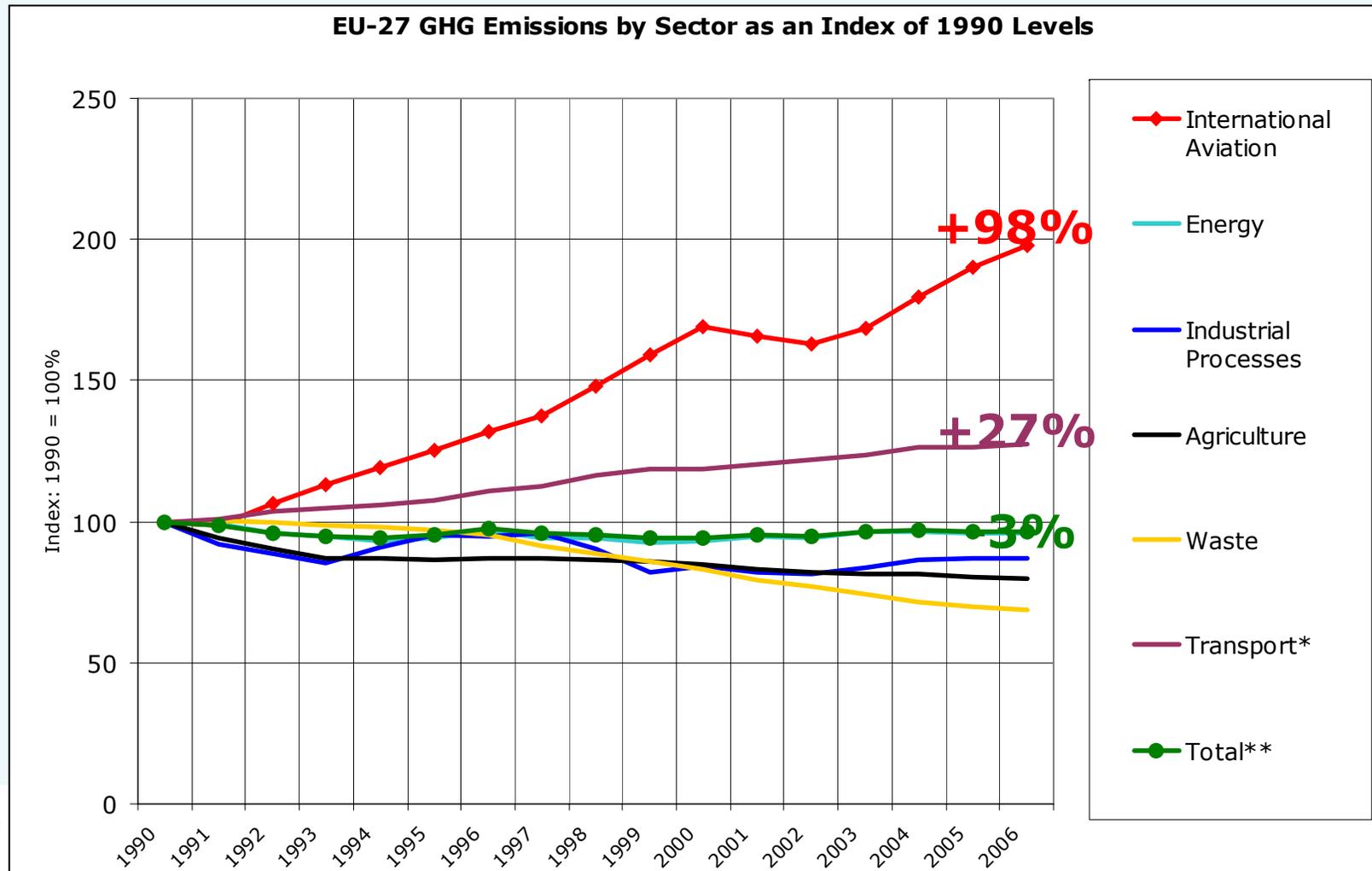
Developed countries 80-95% below 1990 by 2050



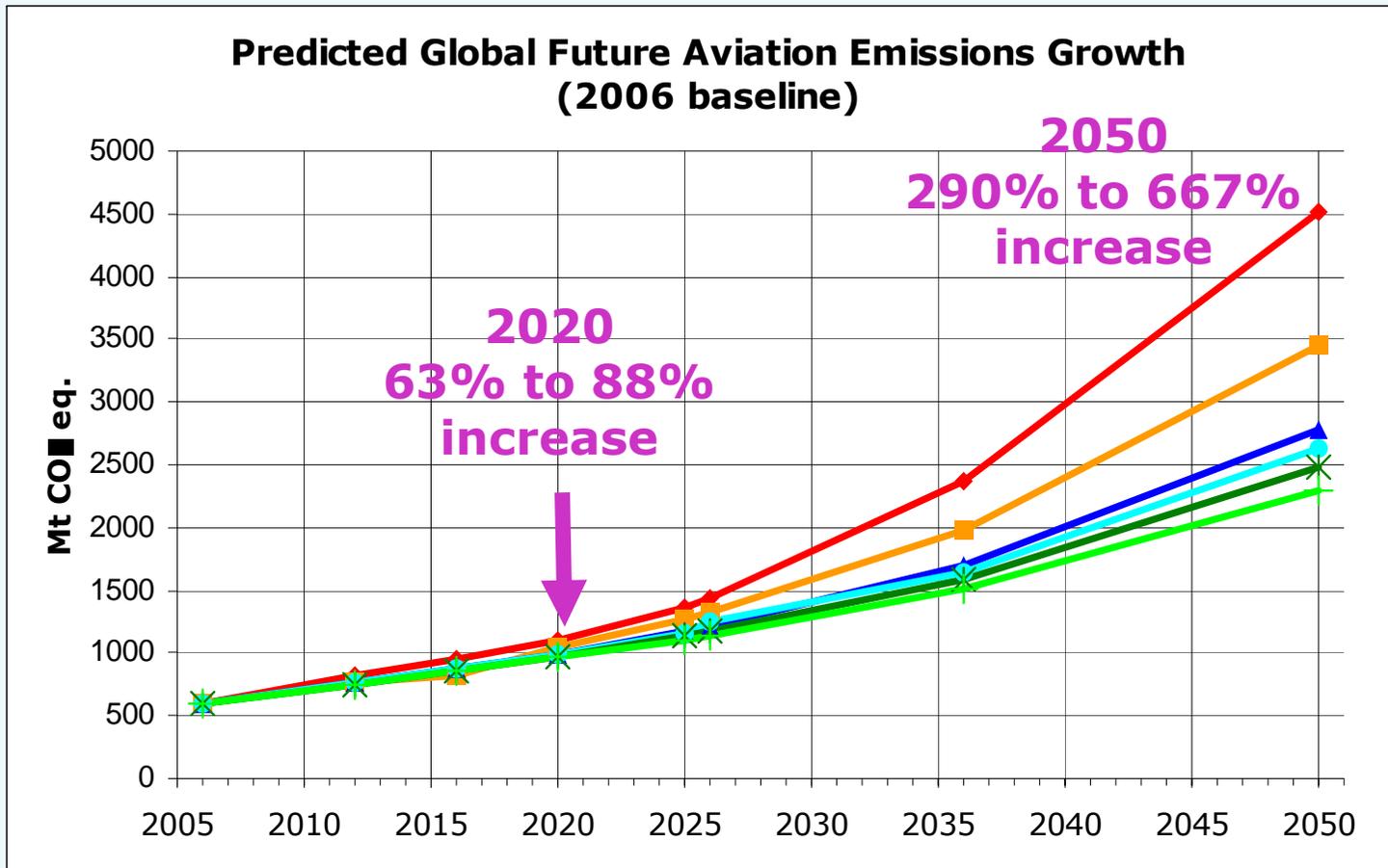
Global peak for all emissions by 2020



In Europe, aviation emissions have almost doubled whilst total emissions have declined



ICAO forecasts significant further emissions growth through to 2050



- 3.5 Gt is one-fifth of the 18 Gt to which global emissions need to be limited in 2050 to contain climate change to 2°C



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The EU has a comprehensive climate policy in place

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- Legally binding target to reduce emissions by 20% in 2020 from 1990 levels
 - EU Emissions Trading System since 2005 reducing emissions from industrial installations and aviation
 - Industrial and energy sectors: -21% below 2005 by 2020
 - National emission targets for other sectors:
 - e.g. buildings, agriculture, other transport: - 10% below 2005 by 2020
 - Targets between Member States vary in accordance with capability, some make deep cuts, others able to grow



What is emissions trading?

- Emissions trading - also known as cap and trade and carbon markets
- Governments set an overall cap on emissions, below actual or expected emissions – no limit on any individual company
- Cap is made up of allowances to emit
- One allowance equals one tonne of carbon dioxide
- Emissions are monitored, reported and verified
- At the end of each compliance cycle, allowances equal to emissions must be surrendered
- Because demand for allowances is greater than the supply, these allowances acquire value relative to their scarcity = the carbon price
- Principal means of allocation are
 - free allocation: grandfathering vs benchmarking
 - auctioning



What is the international carbon market?

- As well as the EU, legislatures in other countries have been exploring emissions trading (US at federal and State level, Australia, New Zealand, Korea, pilots in China)
- EU legislator has provided for companies to use international credits/ Clean Development Mechanism (CDM)
- CDM is voluntary emission reduction projects in developing countries
- 3472 registered projects, with average annual reduction 520 Mt
 - Delhi Metro, which can earn 3.7 million offsets, carrying 1.8 million passengers and displacing 90,000 road vehicles in the Indian capital
 - Efficient fuel wood stoves in Nigeria and biomass gasification in Burkina Faso
 - Amatitlan Geothermal energy in Guatemala
 - Biomass Energy Plant Lumut, Malaysia
 - Solar water heating in Bangalore, India
 - Zhulai Gaolan Island Windfarm Project, China



EU Emissions Trading System (EU ETS) has been running for 7 years

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- Mandatory cap and trade system
- Started in 2005, applies in 30 European States
- Guaranteed environmental outcome with a cap on total emissions
- Covers 11,000 installations emitting around 50% of EU CO₂ emissions (2 billion tonnes)
- Liquid market, 30-40 million allowances traded each day on a number of exchanges
- Includes many businesses headquartered outside of Europe (e.g. US Steel, Petrochina, Tata Steel, Cemex, Exxon, Mitsubishi)
- Creates significant demand for credits from emissions reduction projects in developing countries (300 Mt used already in EU ETS)
- Cost effective way to achieve the transition to a low carbon economy



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Crafting the EU approach to aviation: the international back drop

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- 1992: UNFCCC
- 1997: Kyoto Protocol
- 2001: Marrakech
- 2001: ICAO Assembly Resolution A33-7 Appendix I
- 2004: ICAO Assembly Resolution

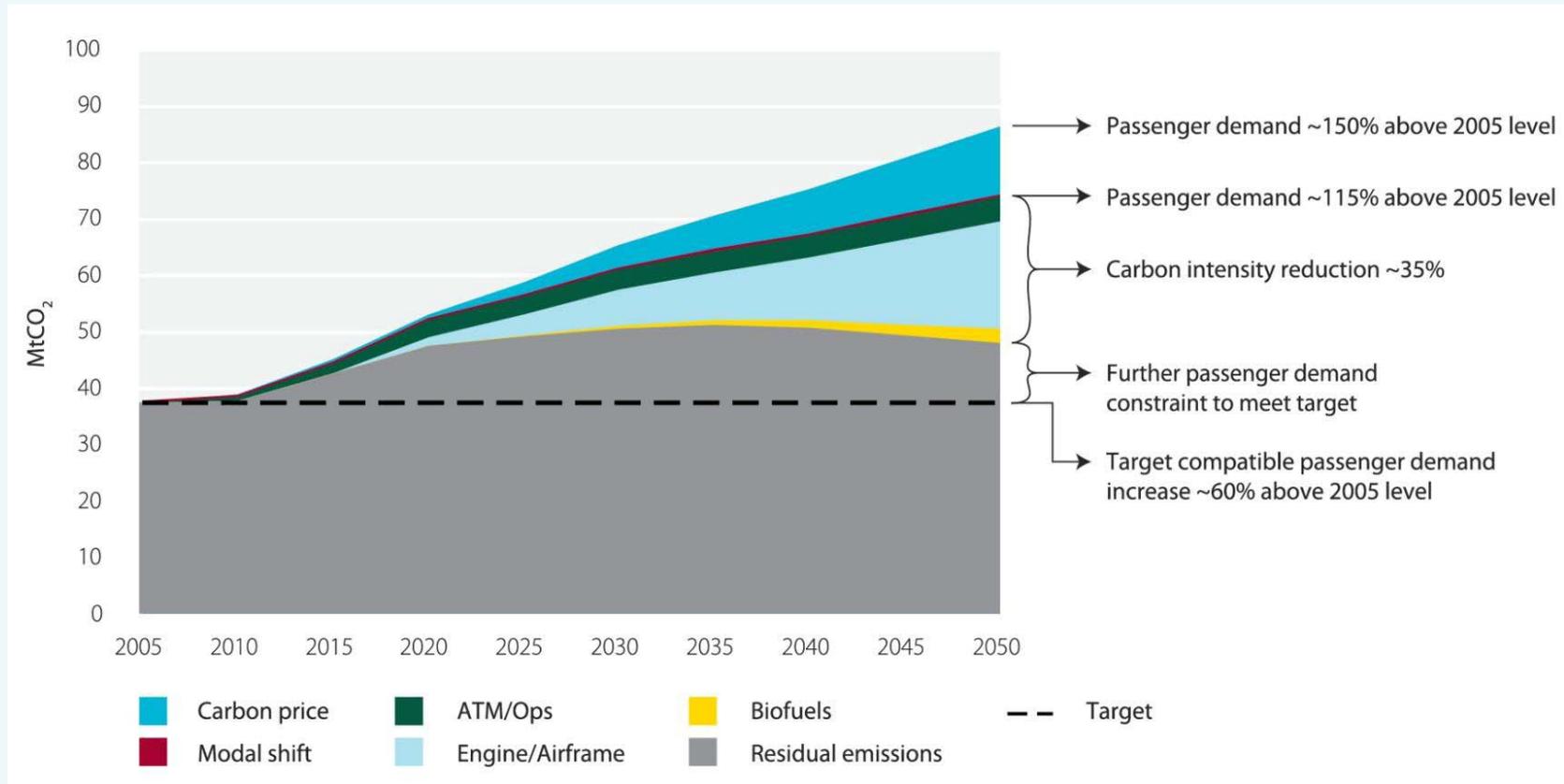


The EU has a comprehensive approach to address aviation's climate impacts

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- ATM Modernisation
 - Single European Sky
 - SESAR Joint Undertaking
- Research and Development of New Technology
 - Clean Sky Joint Technology Initiative (€1.6 bn over 7 years)
 - Sustainable alternative fuels
- New Standards
 - Through ICAO, e.g. new aircraft CO₂ standard
- Market-Based Measures
 - EU Emissions Trading System
 - Includes direct support for aviation biofuels

Even with the comprehensive approach emissions projected to grow





Why did the EU consider emissions trading appropriate for aviation?

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- Extensive consultation process in 2004/ 05
- ETS has well known benefits:
 - Achieves least cost emissions reductions
 - Guaranteed environmental outcome
 - Allows for the growth of the aviation sector
 - Predictability
 - Flexibility for business: to reduce, to acquire reductions from CDM, to acquire reductions from other sectors, and auctions
- Business prefers it to other regulations – provides business choice

“Extending the EU ETS to cover aviation is probably the least-cost and most effective way to reduce aviation’s climate impacts in Europe”

– IATA, September 2006



ICAO has endorsed emissions trading for aviation since 2001

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- ICAO discussions on market-based measures since 1991 and emissions trading since 1998
- Each ICAO Assembly since 2001 has endorsed the development of open emissions trading for international aviation;
 - open systems involve aviation buying allowances from other sectors if most cost effective
- 2004 Assembly
 - decided not to establish new global legal instrument under ICAO
 - endorsed the incorporation of international aviation into States' existing emissions trading systems
- 2007 ICAO Assembly
 - opposition to application of ETS without “mutual consent”
 - formal reservation on resolution by 42 European states
- 2010 ICAO Assembly
 - adoption guiding of principles for the design and implementation of market based measures by States
 - recognition that some states may take more ambitious action prior to 2020
 - further consideration on the feasibility of a global market based measure
 - formal reservations on the resolution by 53 States (including 27 EU Member States)



EU ETS is compatible with ICAO's approach

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- Incorporation of aviation into State's existing emissions trading system
- Open system – access to emissions reduction in other sectors
- Non-discriminatory – provides a level playing field
- Application based on arrival/ departure, not airspace - which was considered 'impracticable' in ICAO guidance on emissions trading
- Consistent with the 15 guiding principles for MBMs adopted at 2010 Assembly
- Legislation obliges the EU to continue to seek an agreement on global measures



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The 2009 aviation / ETS law expanded the system to include aviation

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- Flights arriving at and departing from EU airports included in EU ETS
- Expands the total EU ETS cap by approximately 10%
- Baseline is average annual emissions of 2004-2006 (221.4 Mt CO₂)
 - 2012 cap = 97% of baseline
 - 2013-2020 cap = 95% of baseline
- Aviation can use allowances from other sectors and international credits for compliance



The majority of the allowances are allocated to airlines for free

- 2012
 - 85% allocated to operators free of charge, based on a benchmark (182.6 Mt)
 - 15% offered at auction (32.2 Mt)
- 2013-2020
 - 82% allocated to operators free of charge, based on a benchmark (172.5 Mt)
 - 15% offered at auction (31.6 Mt)
 - 3% held in reserve for new entrants and fast growing operators (50 Mt), distributed in middle of 2013 -2020 trading period



The EU ETS exempts specific flights

- Activity based *de minimis* exempts commercial air transport operators with:
 - Around 2 flights or less per day, or
 - less than 10 000 tonnes of CO₂ / year
- Small aircraft - of less than 5 700 kg
- State, military, rescue, emergency, VFR, training flights

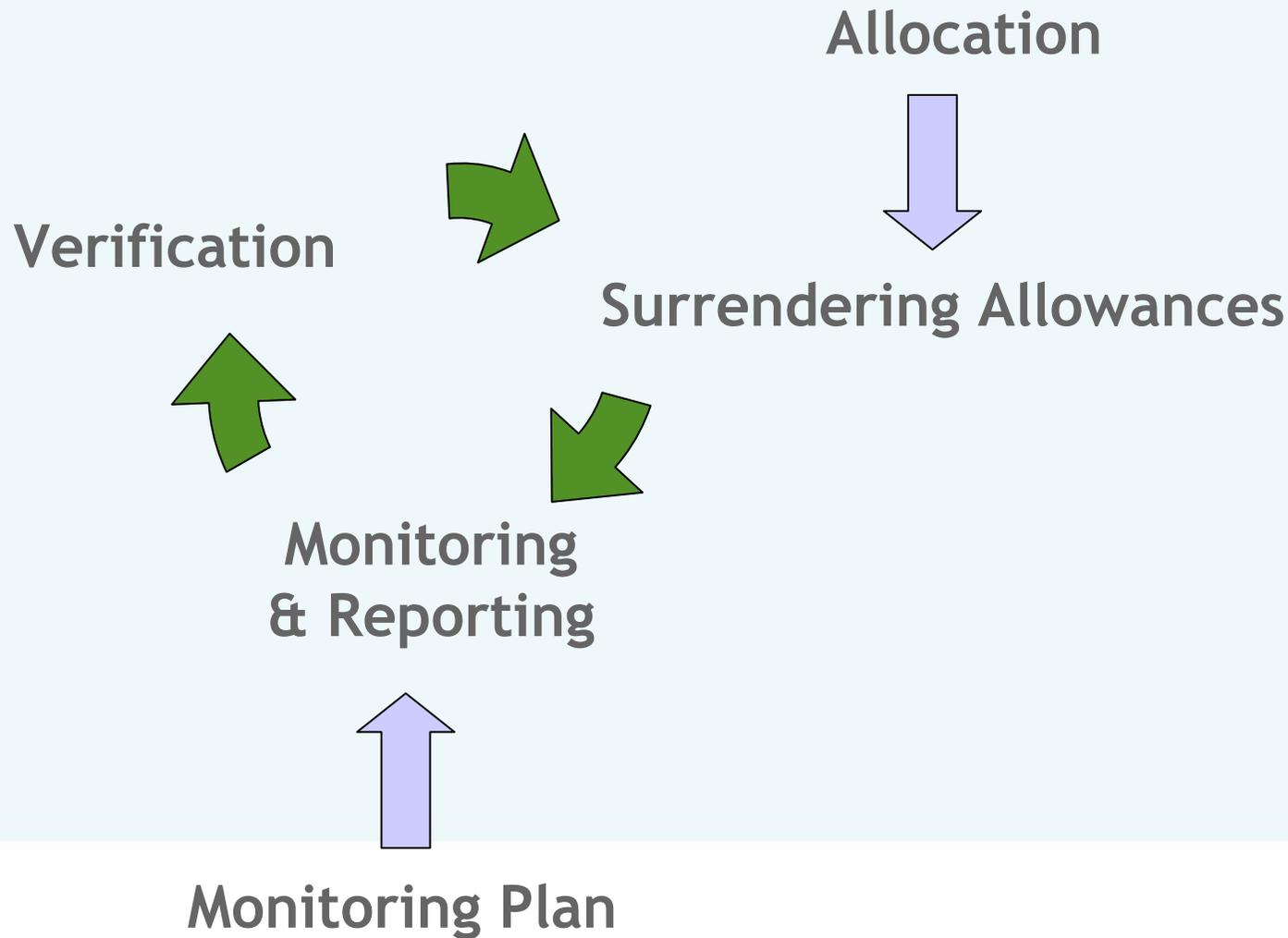
98 ICAO States have no commercial carriers covered by the EU ETS

<i>Afghanistan</i>	<i>Chile</i>	Gambia	Malawi	Papua New Guinea	<i>Suriname</i>
Andorra	Comoros	Ghana	Maldives	Paraguay	<i>Tajikistan</i>
Antigua and Barbuda	<i>Congo</i>	Grenada	<i>Mali</i>	Peru	Timor-Leste
Bahamas	Cook Islands	Guatemala	Marshall Islands	<i>Philippines</i>	<i>Togo</i>
Barbados	Costa Rica	Guinea-Bissau	Mauritania	Rwanda	Tonga
<i>Bangladesh</i>	<i>Cuba</i>	Guinea	Micronesia (Federated States of)	Saint Kitts and Nevis	<i>Trinidad and Tobago</i>
Belize	<i>Côte d'Ivoire</i>	Guyana	Monaco	Saint Lucia	Uganda
Benin	Democratic People's Republic of Korea	Haiti	<i>Mongolia</i>	Saint Vincent and the Grenadines	<i>United Republic of Tanzania</i>
Bhutan	Democratic Republic of the Congo	Honduras	<i>Mozambique</i>	Samoa	Uruguay
<i>Bolivia</i>	Djibouti	Iraq	Myanmar	San Marino	Vanuatu
Botswana	Dominican Republic	<i>Jamaica</i>	<i>Namibia</i>	Sao Tome and Principe	<i>Yemen</i>
Burkina Faso	Ecuador	Kiribati	Nauru	<i>Senegal</i>	<i>Zimbabwe</i>
Burundi	El Salvador	Kyrgyzstan	Nepal	Sierra Leone	Zambia
Cambodia	Equatorial Guinea	Lao People's Democratic Republic	Nicaragua	Solomon Islands	
Cameroon	<i>Eritrea</i>	Lesotho	Niger	Somalia	
Central African Republic	Fiji	Liberia	Palau	Swaziland	
Chad	Gabon	Madagascar	Panama	<i>Sudan</i>	

- 75 States have no commercial operator with flights to the EU; and
- 23 States have commercial aircraft operators which fall under the *de minimis* provisions in the EU ETS and are thus exempt from EU ETS (in italics).
- Source: Eurocontrol

Monitoring, reporting and verification is central to the annual compliance cycle

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Implementation of the system is on track

- Legislation proposed in 2006, agreed in 2008 and in force since 2009
- All EU Member States have adopted national laws implementing it
- All significant commercial aircraft operators in full compliance
- Benchmark published this week for allocation of free allowances to over 900 airlines



Next steps

- **2011**
 - 26 December Deadline for Member States to publish allocations of allowances to aircraft operators
- **2012**
 - 28 February Issuing of free allowances for 2012
 - 31 March Submission by aircraft operators to States of 2011 verified emissions report
- **2013**
 - 28 February Issuing of free allowances for 2013
 - 31 March Submission by aircraft operators to States of 2012 verified emissions report
 - 30 April Surrender of allowances equal to the 2012 emissions



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Estimated costs per passenger

Route	CO ₂ emissions	Cost Low case	Cost High case
Brussels to Montreal	379 kg	€0.91	€4.55
Paris to Beijing	627 kg	€1.50	€7.52
Amsterdam to Johannesburg	683 kg	€1.64	€8.20
Frankfurt to Singapore	753 kg	€1.81	€9.04
London to Rio de Janeiro	746 kg	€1.79	€8.95

- CO₂ emissions from **ICAO carbon calculator** – reflecting typical aircraft and load factors
- Carbon price = €12
- Assumes growth in aviation from baseline – typical long haul airlines receive around 80% of their required allowances for free



The effects on customers

- **LOW CASE:** If only **actual cost** at current carbon prices are passed through, should be below €2 per passenger each way on a transatlantic or other long-haul flight
- **HIGH CASE:** If **full value** of all allowances are passed through – as has been experienced e.g. the energy sector – this could go up to around €12 per passenger for the same flight

- Compared to the current ticket prices, a modest increase
- Compared to other policies:
 - Significant and justified costs for US and other countries' aviation **security requirements**
 - Passenger fees e.g.
 - US - \$16.30 arrival, \$16.30 departing
 - India – 500 Rp (\$10) departing, since 2010



The effects on airlines

- All airlines treated equally, so competition between airlines will not be significantly affected
- Airlines receive majority of aviation allowances free of charge
- No net cost increases to airlines - as costs of allowances that are not distributed for free will be passed to customers
- If full pass through, then potential increase in airline revenue (up to €20 bn over 2012 to 2020 period)
 - “We believe that the sector will be able to pass on the carbon cost to a large extent” - Standard & Poors
 - “Impact of Carbon Price... there will be a full pass-through to customers” Qantas website, 11 July 2011*
- “Large global network carriers with more fuel efficient fleets will be best placed... low cost and short haul airlines... will be the more adversely affected” - Standard & Poors

*<https://www.qantas.com.au/agents/dyn/qf/info/201107/0706>, re: Australian action

Modelling suggests that the EU ETS will have a small impact on demand

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Change in aviation demand
(revenue tkm)





Main benefits

- Significant emissions savings – over 70 million tonnes of CO₂ per year in 2020
- Incentivises demand for biofuels
 - EU ETS provides a financial incentive as the proportion of sustainable biofuels counts as zero emissions
- EU ETS includes €3.6 billion earmarked financing for low carbon technology demonstration projects including biofuels (until 2015)
- Results in significant investment in developing countries through use of international credits (e.g. CDM)



The EU ETS legislation contains flexibility

- Where another State takes measures to reduce climate change impacts, the European Commission may use “implementing powers” to exclude from the EU ETS flights arriving from that state
- EU ready to engage constructively in consultations



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Is the EU ETS compatible with international law?

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- Legality of EU ETS was subject to extensive consideration during development of the legislation
- Court case by U.S. airlines at European Court of Justice
 - Advocate General opinion due on 6 October
 - Judgment due early next year

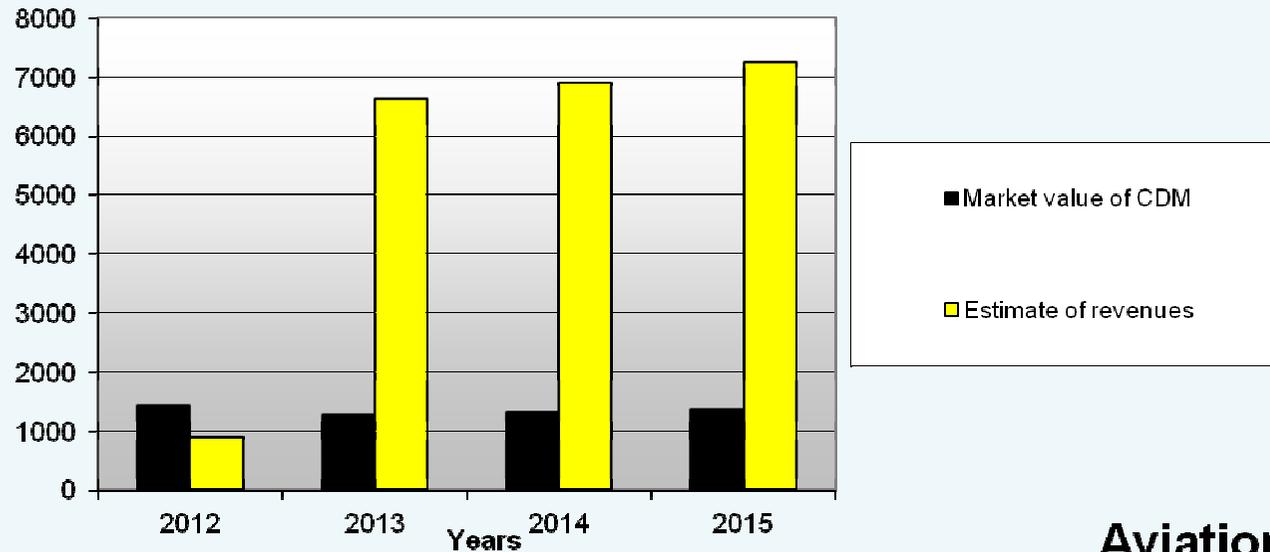


Why is the EU ETS not a tax?

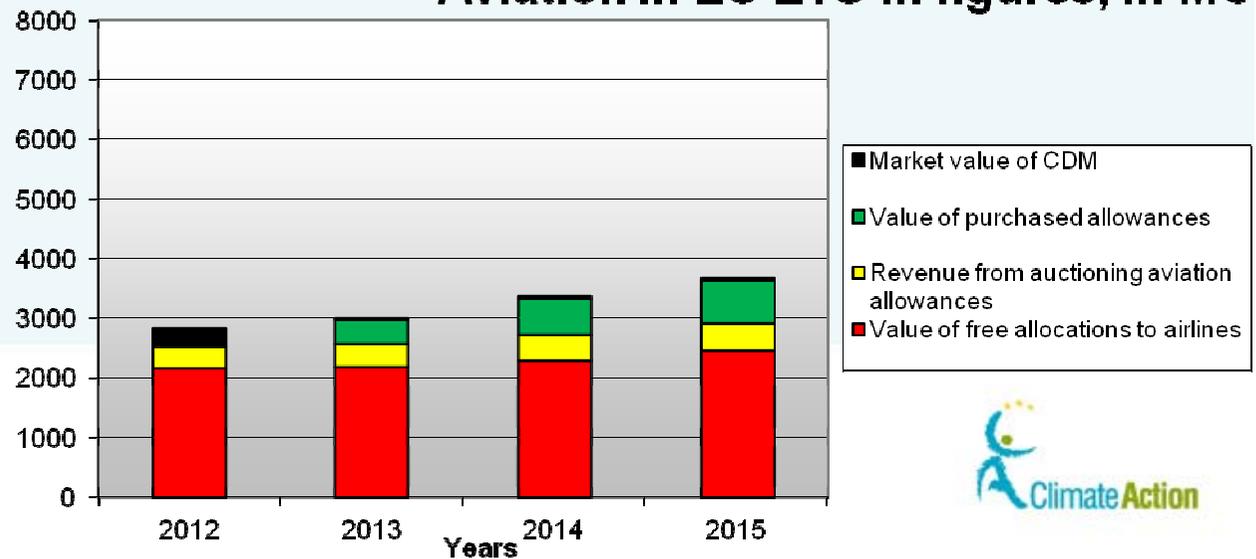
- Emissions trading is clearly recognised by ICAO as a **different** policy instrument to taxes and charges
- Key objective of the policy is to limit emissions, not to raise revenues
- Most allowances allocated for free, a small proportion offered at auction
- No obligation on aircraft operators to buy at auctions
- 100 % of revenues should be spent by EU Member States on climate change mitigation and adaptation

EU ETS in figures

Overall ETS revenue streams, in M€



Aviation in EU ETS in figures, in M€





Revenues from auctioning aviation allowances to be used for climate purposes

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- The legislation states that auctioning proceeds should be spent on tackling climate change in the EU and third countries
- Range of uses outlined in the legislation, e.g.
 - Reduce emissions
 - Adaptation
 - Global Energy Efficiency and Renewable Energy Fund
 - Reducing deforestation in developing countries
 - Research and development (mitigation and adaptation in aeronautics and air transport)
 - Low emission transport
- Some EU Member States already do this
- EU Member States must report how they use revenues to the European Commission

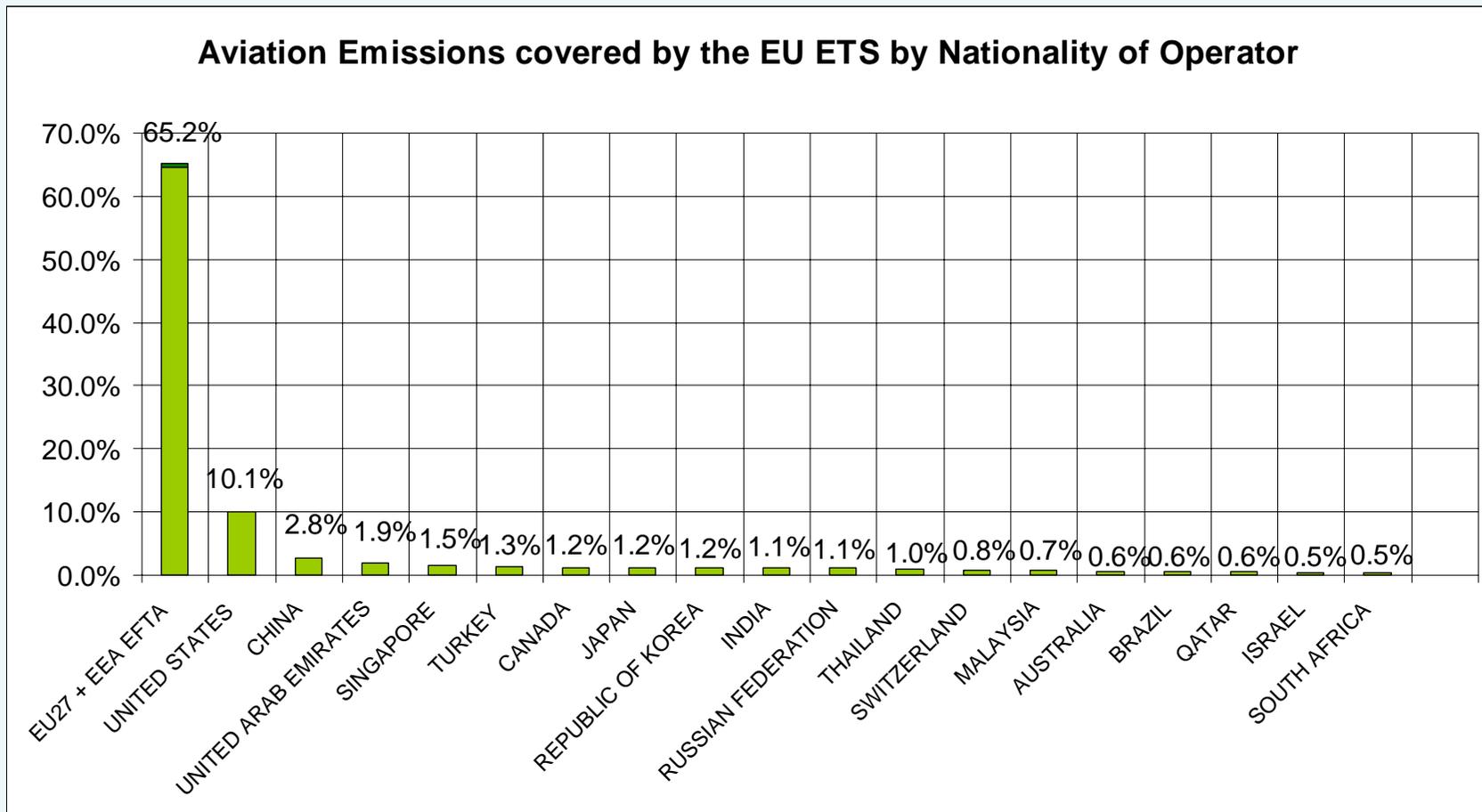


Why is EU ETS consistent with CBDR?

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- The EU ETS **applies to businesses** active in the EU market
- The EU ETS does not apply to States
- The UNFCCC principle of “*common but differentiated responsibilities and respective capabilities*” **applies to States** and the climate measures that they take
- Discriminating between operators on the basis of nationality would be incompatible with the Chicago Convention

EU aircraft operators produce the majority of emissions





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Next steps – internationally (1)

- EU committed to continue working within ICAO for a global agreement
 - Agreement for harmonised global approach, or
 - Interacting national and regional systems
- EU prepares its own action plans, and encourages other States to submit action plans to ICAO, which could include information on any specific assistance needs



Next steps – internationally (2)

- Follow up work on market based measures needs to accelerate
 - Further develop framework for market based measures
 - Feasibility study on global MBM system
 - More work on medium and long term goals
- EU fully supportive of this process
- EU is open to discuss incoming flights under the EU ETS

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