

2016 Global Aviation Dialogues (GLADs) on Market-Based Measures to address Climate Change

1. Overviews of ICAO's work on a global MBM scheme and a process toward 39th Assembly



Environment, Air Transport Bureau
International Civil Aviation Organization (ICAO)

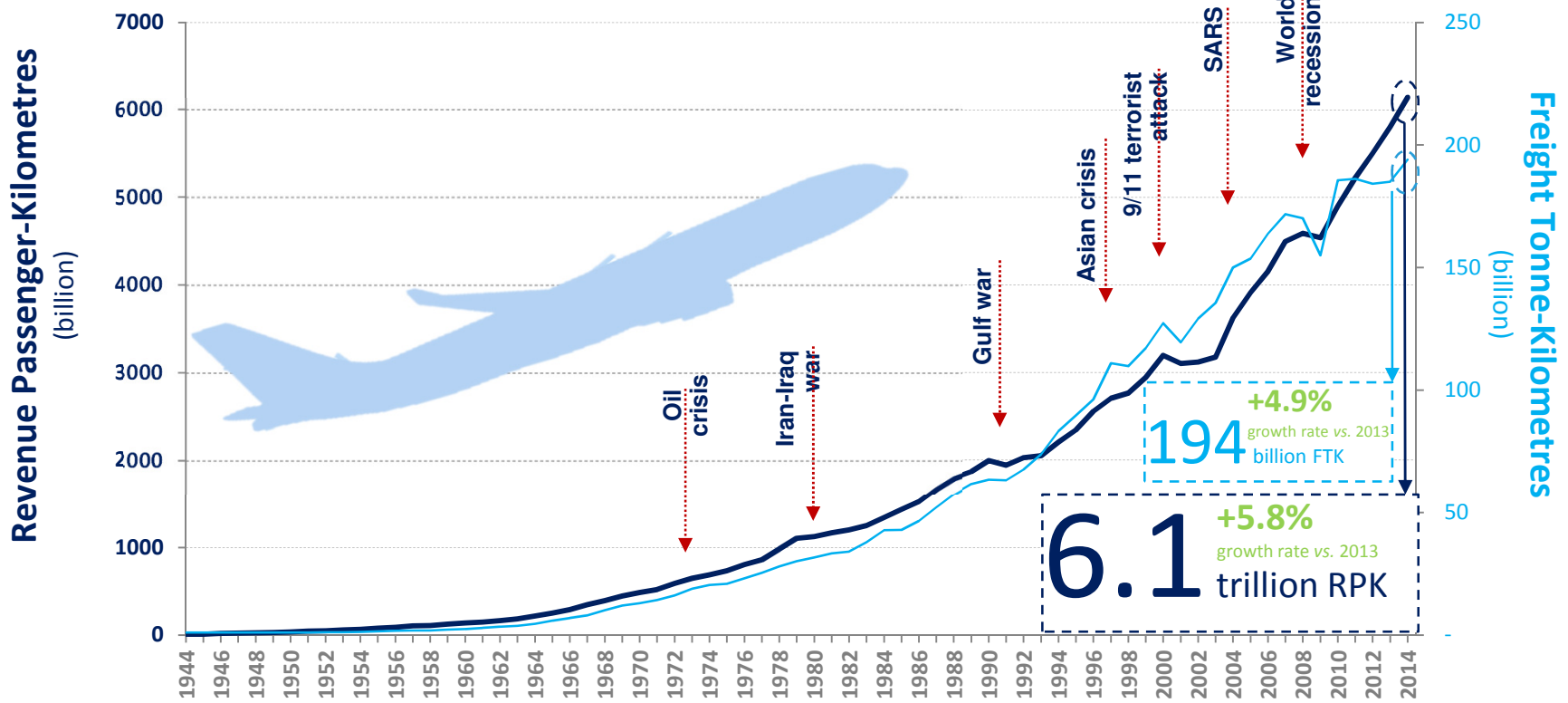


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Video – ICAO Environment work

A Constellation of Partners for Sustainable Skies:
<https://www.youtube.com/watch?v=2PhMjggQNJ4>

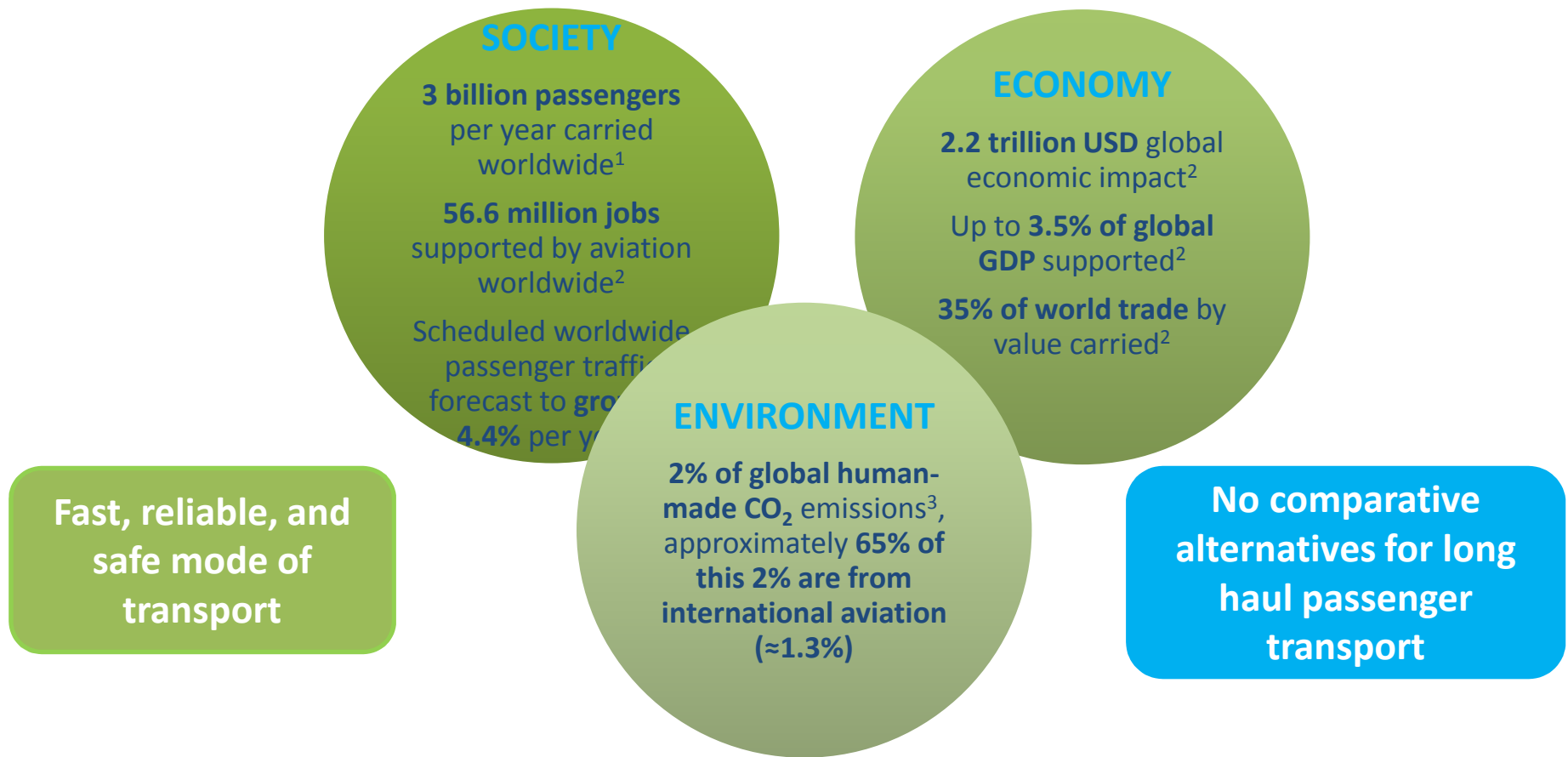




- 3.3 billion passengers
- 50 million tonnes of freight
- 1400 scheduled airlines
- 26 700 aircraft in service
- 3 927 airports with scheduled commercial flights
- 173 air navigation services providers

4

Traffic is for scheduled services in 2014



Source: 1. ICAO Facts and Figures retrieved 27 March 2014, 2. ATAG "Aviation Benefits Beyond Borders,"2010, 3. IPCC 4th Assessment Report, 2007.



Approach to Quantification through:

- Data Collection and Compilation (RTK¹, Fuels² and Emissions Reduction)
- Forecasting
- Modelling

Identification of Mitigation Measures through:

- Aircraft Technology
- Operational Improvements
- Sustainable Alternative Fuels
- Market-based Measures

BASKET OF MEASURES

Approach to Implementation through:

- States' action plans and Assistance to States
- Global action to implement measures to reduce CO₂

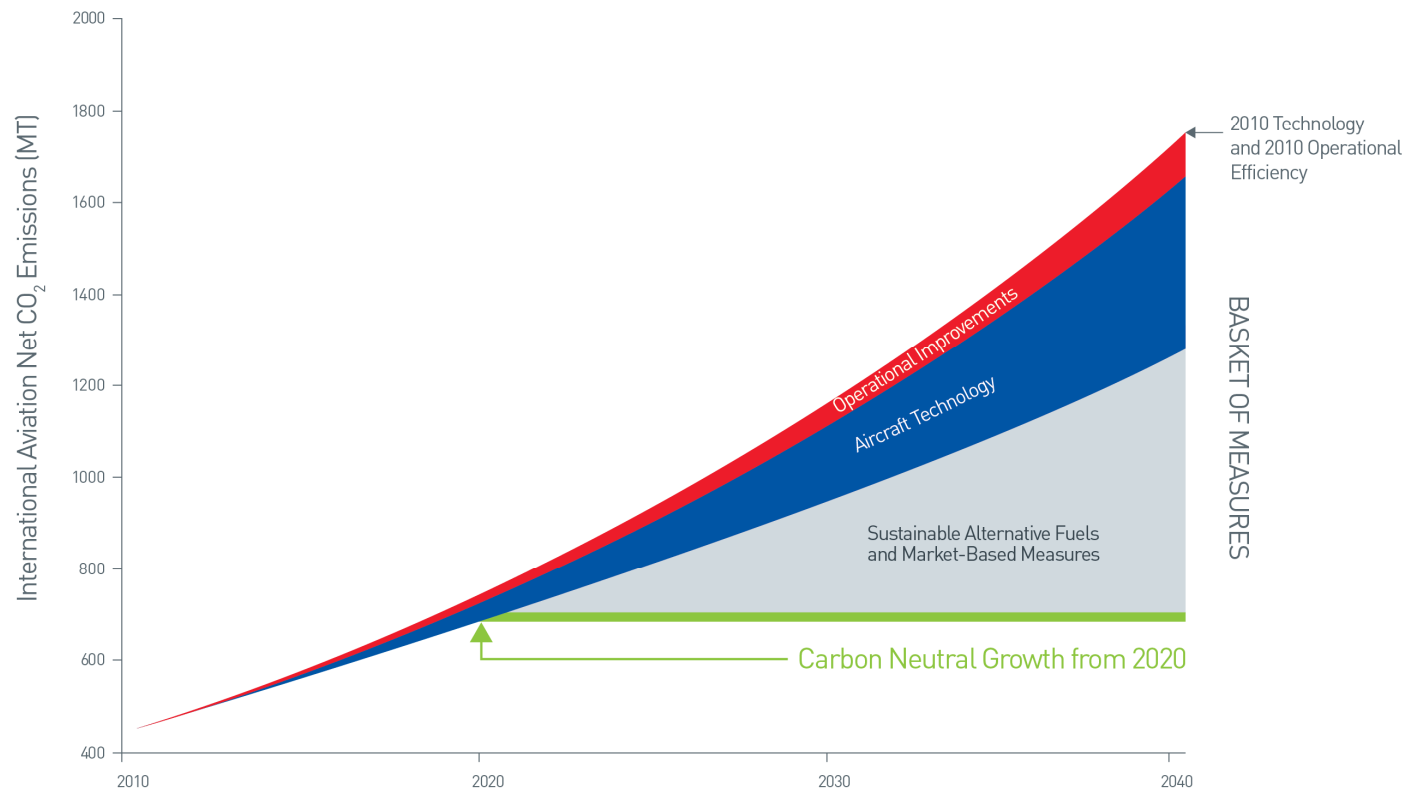
1. ICAO Contracting States report traffic data through Form A

2. ICAO Fuel Consumption reporting Form M and modelled data is processed using ICORAS tool

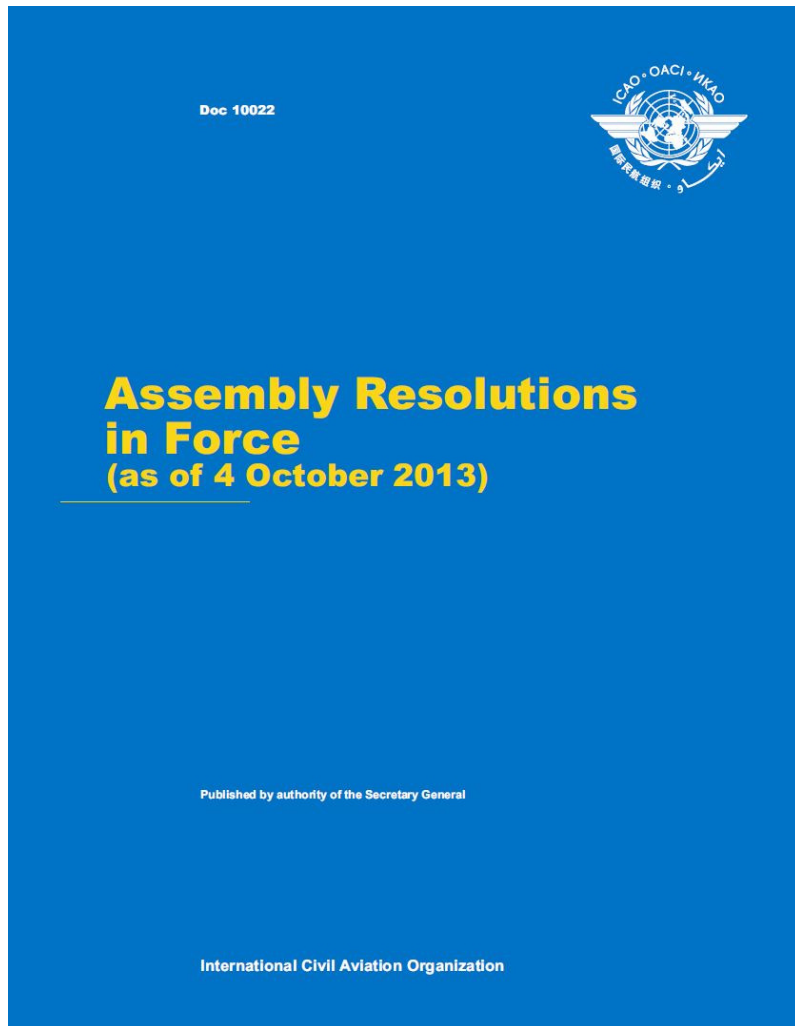


Why a global MBM?

Contribution of Measures for Reducing International Aviation Net CO₂ Emissions



- Aspirational goal: carbon neutral growth from 2020 (CNG 2020)
- To be achieved through a basket of measures, including a global market-based measure (MBM)
- Global MBM = complementary role to fill emissions gap for CNG2020



The 38th Assembly 2013 “decided to develop a global MBM scheme for international aviation” (implementation from 2020 onwards)

- Requested the Council, with the support of Member States, to:
 - Finalize all preparatory work (technical, environmental and economic impacts, modalities of possible options)
 - Organize seminars and workshops
 - Identify major issues and problems, and make a recommendation for a global MBM that addresses them
 - Report the results of the above work for decision at A39 (2016)



- In March 2014, Council established Environment Advisory Group (EAG) to oversee all work related to the development of a global MBM scheme, under the Council’s guidance
- EAG is composed of 17 Council representatives and IATA
- EAG pursued progress, starting with a “Strawman” approach, in which a basic proposal on carbon offsetting was tabled with a view to generating discussion and analyses for improvements
- The Council in Nov. 2014 approved the EAG’s recommendation to convene the first round of GLADs in April 2015



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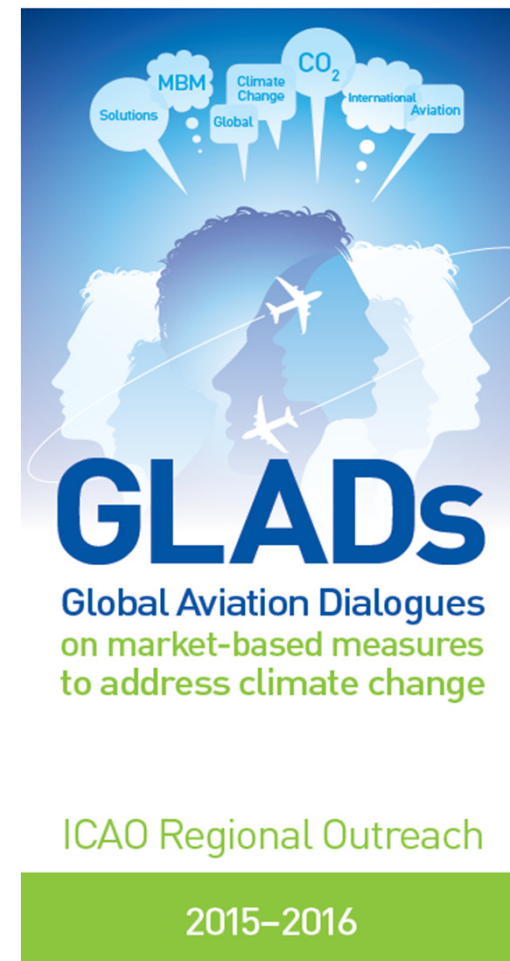
First Round of GLADs in 2015

- The 38th ICAO Assembly, requested the Council to organize seminars and workshops on a global scheme for international aviation
- The first round of Global Aviation Dialogues (GLADs) were organized throughout April 2015 in 5 venues



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First Round of GLADs in 2015

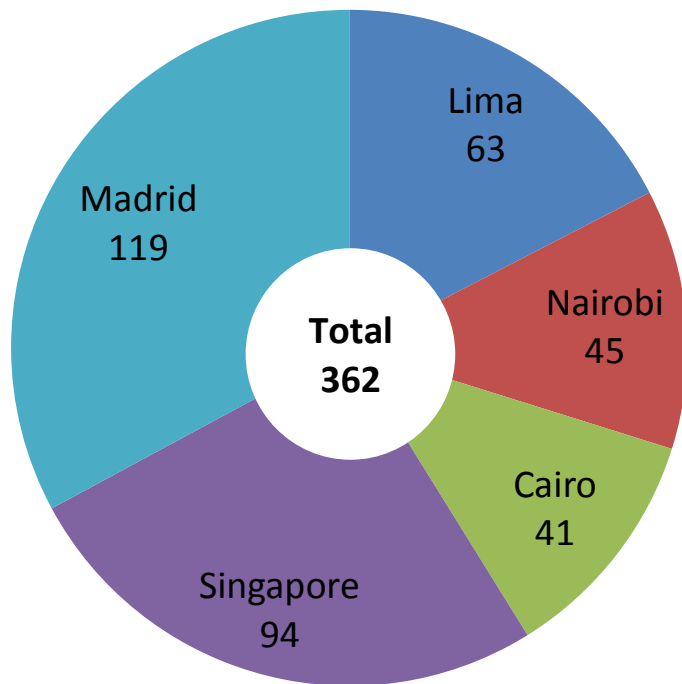




- Objectives of 2015 GLADs
 - Share information regarding MBMs and their role in a basket of measures adopted to address CO₂ emissions from international aviation;
 - Provide up-to-date information on the work of ICAO on the development of a global MBM scheme;
 - Serve as an opportunity to receive feedback from Member States and relevant organizations on the development of the global MBM scheme.



Total Participation in GLADs



- **362 total participants** in all five GLADs (320 individual participants including 32 persons who attended more than one GLADs)
- **79 States** participated in the GLADs (all 36 Council States plus 43 Non-Council States)
- **22 International Organizations** participated in GLADs
- Participating States in the GLADs represent **89.8% of international RTK**



- Format of GLADs received positive feedback; it supported engagement and active exchange of views by participants
- Strong request for more information (e.g. carbon markets) and more outreach & capacity building (e.g. though web, regional bodies)





Feedback from 2015 GLADs Participants

Design aspects of global MBM:

- Environmental integrity
- Simplicity
- Cost effectiveness
- Differentiation without discrimination
- Avoiding excessive cost / administrative burdens

Implementation aspects:

- Legal framework
- Continuous information flow and outreach
- Capacity building
- Transparency
- Linkage to States' Action Plans

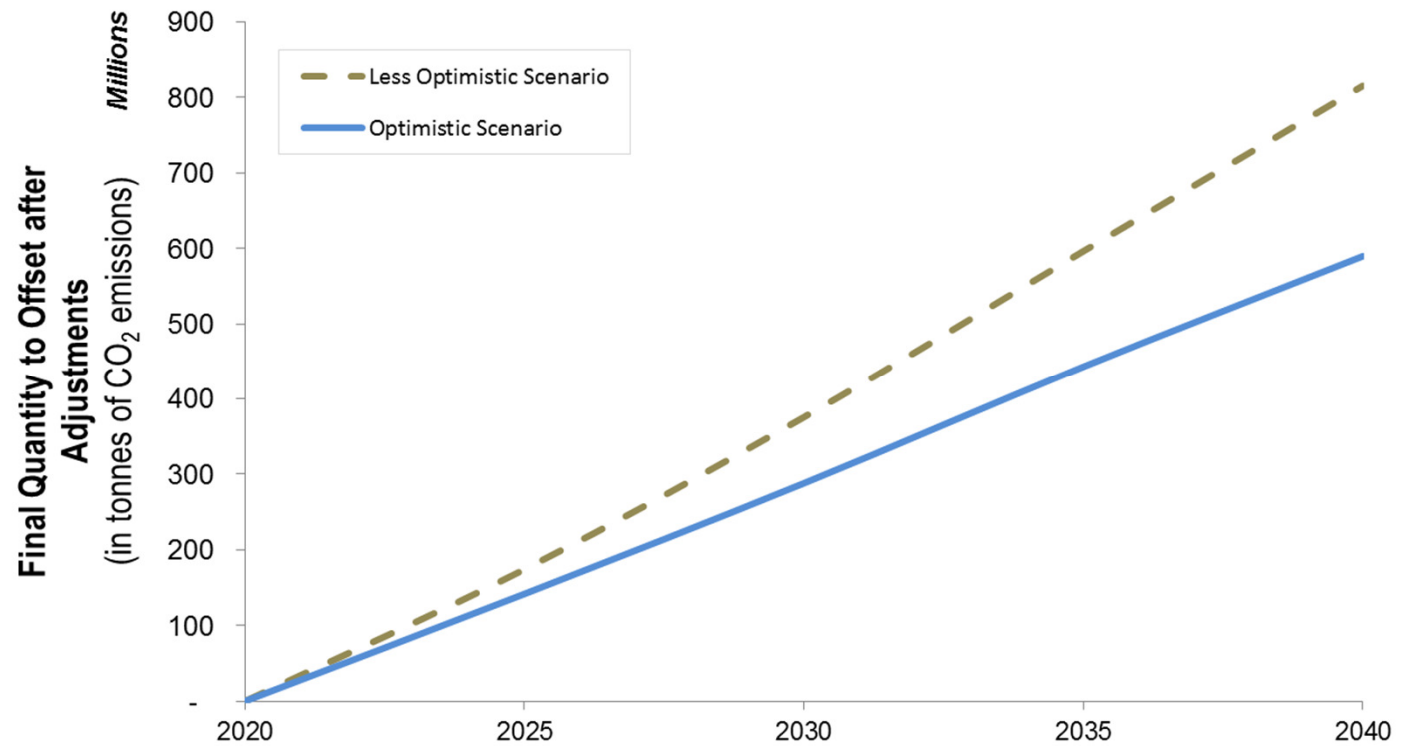
The 2015 GLADs results were reported to the Council Briefing and EAG/11 in May 2015



- Council's Environment Advisory Group (EAG) met 5 times since 2015 GLADs (15 times in total) to make further progress, including technical analyses provided by CAEP:
 - Volumes of future CO₂ emissions from international aviation and overall cost impacts to achieve the carbon neutral growth from 2020;
 - Cost impacts of using different combinations for individual operator's growth rate and the international aviation sector's growth rate;
 - Various options for distribution of obligations to individual aircraft operators (e.g., route-based approach, accumulative approach, and comparison of these approaches);
 - Adjustments of obligations, technical exemptions and exemptions of routes to/from low emitting States.



CAEP Analysis: Emissions to be Offset



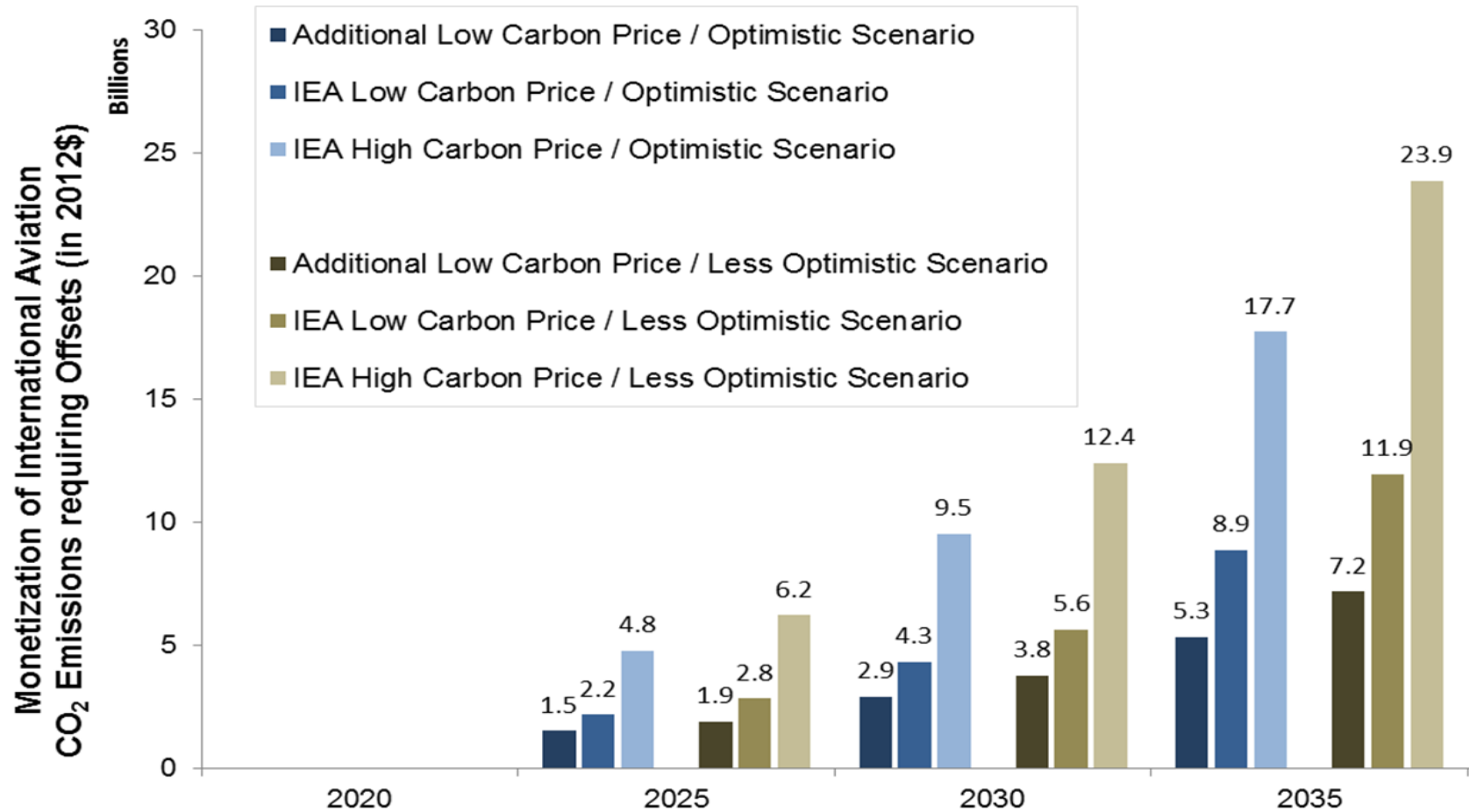
Final Quantity to Offset after adjustments (in Million tonnes of CO ₂ emissions)	2020	2025	2030	2035	2040
Less Optimistic Scenario	-	174	376	596	816
Optimistic Scenario	-	142	288	443	590

Source: CAEP analysis presented at EAG/15



Translation of emissions gap into the cost:

$$\begin{aligned} & \text{Emissions gap} \\ & \quad \times \\ & \text{Carbon price (cost of emissions unit)} \\ & \quad = \\ & \text{Total cost for the sector} \end{aligned}$$

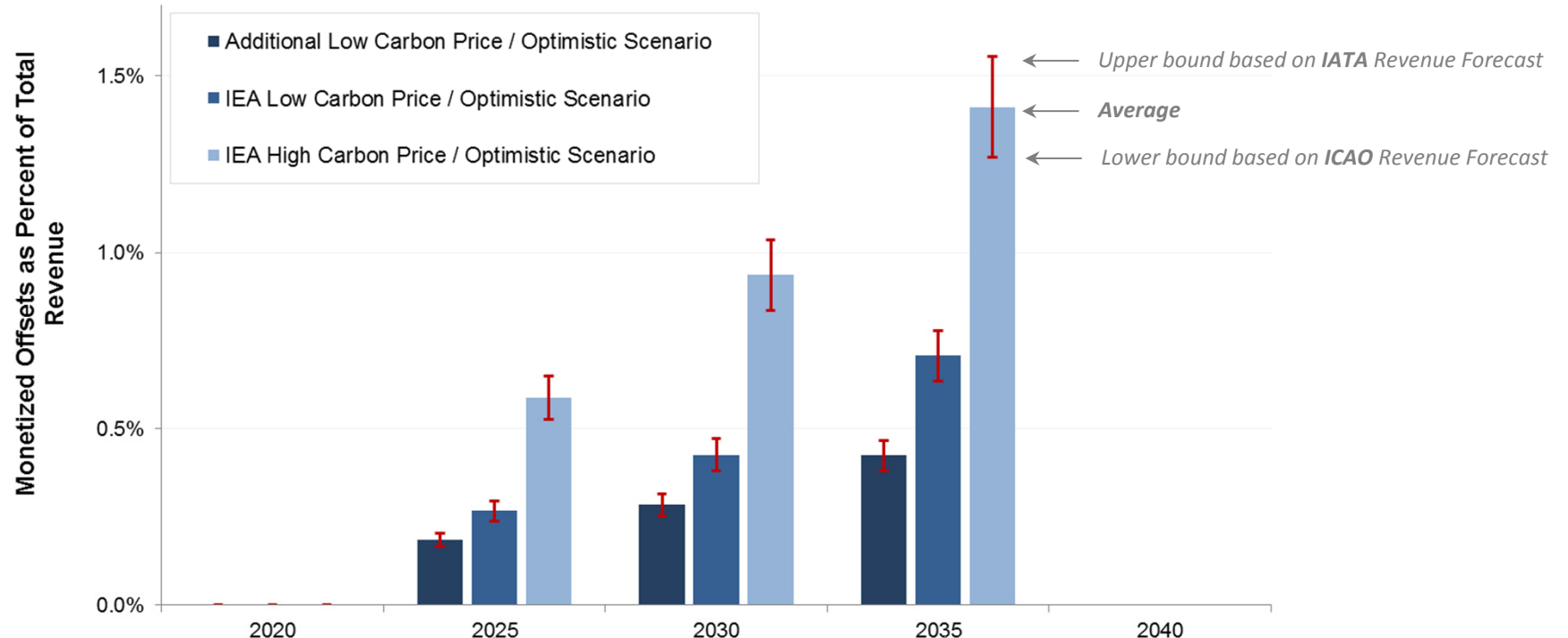


Carbon Price Assumptions:

	2020	2030	2035
<u>IEA High</u>	20 \$/ton	33 \$/ton	40 \$/ton
<u>IEA Low</u>	8 \$/ton	15 \$/ton	20 \$/ton
<u>Additional Low</u>	6 \$/ton	10 \$/ton	12 \$/ton



CAEP Analysis: Cost for Aviation (as % of Revenue)



Revenue Forecast in 2012\$				
ICAO	716 \$B	864 \$B	1,090 \$B	1,330 \$B
IATA	579 \$B	734 \$B	917 \$B	1,140 \$B

Source: CAEP analysis presented at EAG/15

Note: ICAO and IATA Revenue Forecasts compared to Optimistic CO₂ Scenario (A38-WP/26 Scenario 9)



CAEP Analysis: Cost for Aviation (as % of Revenue)

- The analysis shows that, depending on the carbon price scenarios, the cost of carbon offsetting for operators is:
 - 0.2 – 0.6 % of total revenues from international aviation in 2025; and
 - 0.5 – 1.4 % of total revenues from international aviation in 2035.
- It is estimated that the cost of carbon offsetting will have marginal impact on operators than the impact of fuel price volatility



- **MRV (Monitoring, Reporting and Verification)** system is needed for a global MBM scheme:
 - Monitoring of fuel use, collection of data and calculation of CO₂ emissions
 - Reporting of emissions data, which provides the basis to calculate the total emissions and annual obligation of participants
 - Verification of emissions data to ensure accuracy and avoid mistakes
- Once the obligation of each participant is known, information on how to offset emissions is needed: **Emissions Unit Criteria (EUC)** ensure that participants purchase appropriate emissions units from eligible mechanisms/programmes/projects
- Finally, **Registries** track and record compliance data against the offset obligation



- Each year, an aircraft operator reports emissions information to a State in which the operator is registered, using a standard tool/template
- Sustainable alternative fuels are accounted for by aircraft operators as generating CO₂ emissions reduction pursuant to a formula, with relevant emissions factors, to be provided by ICAO
- Each year, States compile and transmit aggregated emissions information of their operators to ICAO, which calculates the total emissions from the international aviation sector based on the submissions



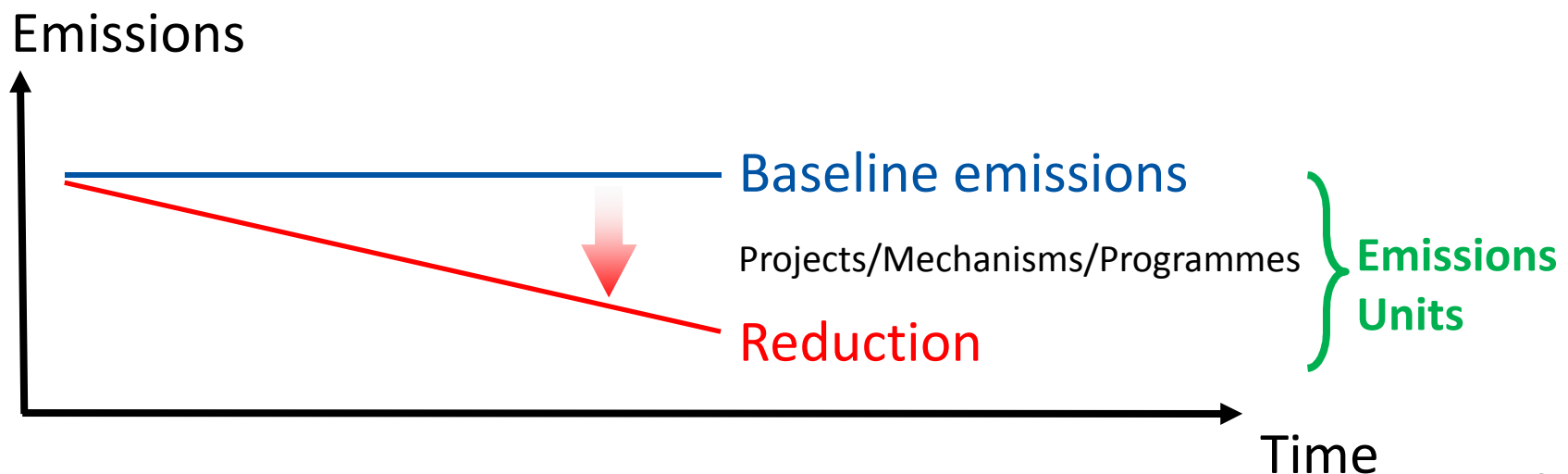
- Emissions data needs to be verified before it can be reported
- Verification of a report is carried out by:
 - Internal pre-verification by an aircraft operator;
 - Third-party verification before reporting from the operator to a State; and
 - Post-reporting review by the State.



- Offsetting compensates emissions through the reduction of emissions elsewhere, involving the concept of “emissions unit”:

1 tonne of CO₂ = 1 emissions unit

- Aircraft operators could compensate their international aviation emissions through the purchase of emissions units, arising from emissions reduction through mechanisms, programmes, projects





Example: Sources for Emissions Units - Mechanisms



- UNFCCC Clean Development Mechanism (CDM)
 - The CDM gives industrialized countries flexibility in how they meet their emission reduction targets
 - The Mechanism allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂
 - These credits can be purchased, for example, by aircraft operators to fulfill their obligations under the global MBM



Example: Sources for Emissions Units - Programmes

UN-REDD PROGRAMME



- “REDD+ “ Programme:
 - Rewards developing countries for reducing emissions from deforestation and forest degradation and foster conservation
 - Creates an incentive for developing countries to protect, better manage and wisely use their forest resources
 - Will possibly produce tradable emissions units in the future
 - Paris Agreement encourages governments to take action related to reducing emissions from deforestation and forest degradation

Example: Sources for Emissions Units - Projects

- Project: Pig Manure produced clean Biogas
 - Bali, Indonesia
 - 134,000 t CO₂ (over 7 years)
 - Gold Standard VER

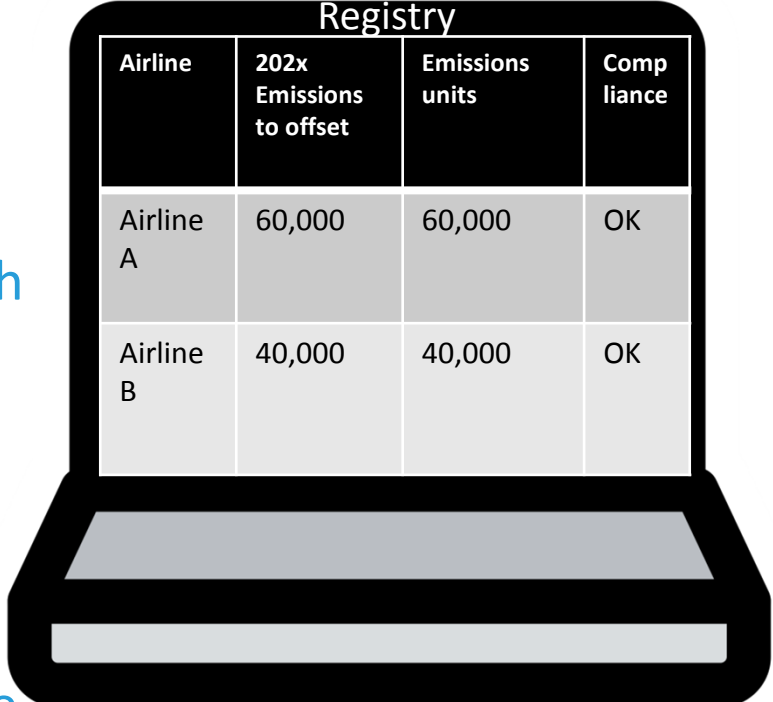


<http://www.myclimate.org/carbon-offset-projects/projekt/indonesia-biogas-7200/>



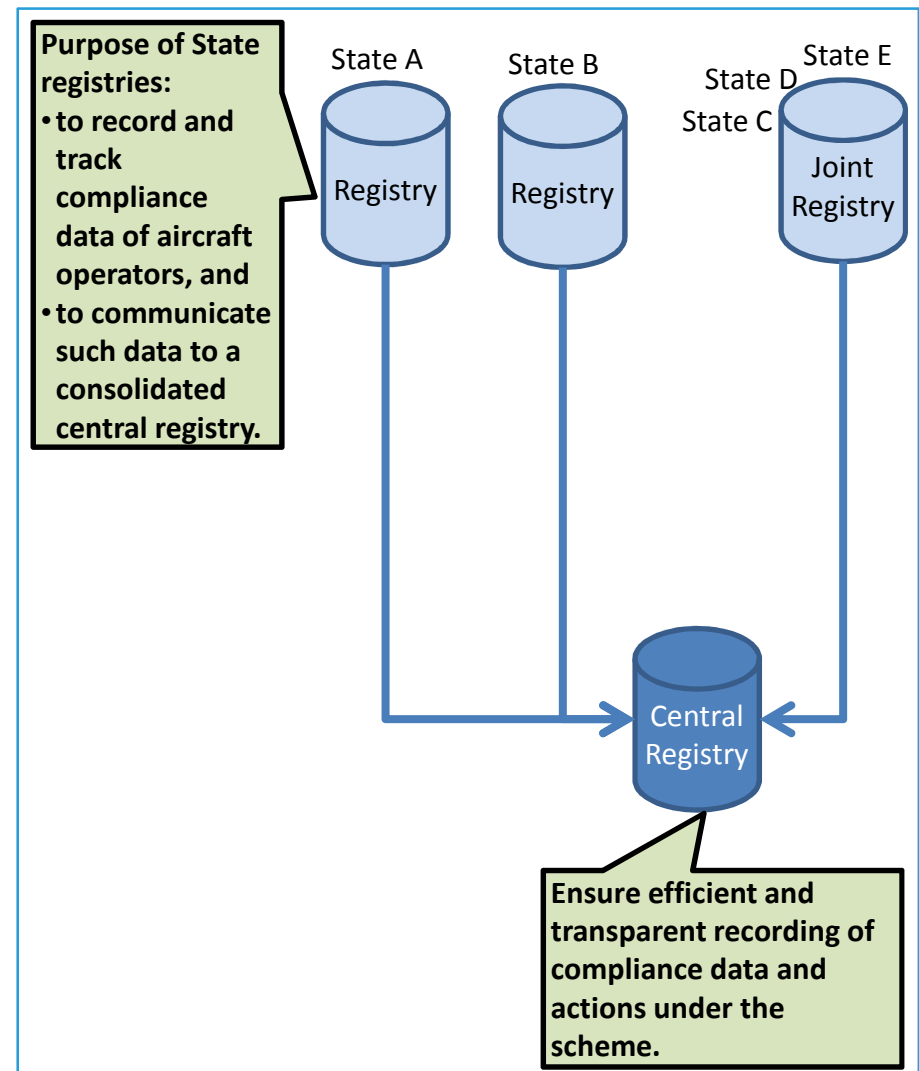
- The decision on what emission units could be used in a global MBM scheme is a key – This work is ongoing by CAEP
- To ensure that only emissions units that meet the criteria will be used under the global MBM, CAEP is recommending that:
 - **Programmes** that generate offset credits should have: clear methodologies and protocols; validation and verification procedures; avoidance of double counting/claiming, etc.;
 - **Offset credits** should be: additional; based on a realistic and credible baseline; represent permanent emissions reductions, etc.;
 - **Allowances** from emissions trading schemes should ensure environmental integrity; market access and transparency, etc.
- Detailed criteria for emissions units will be presented later during the GLADs

- Registry = Computer database, which:
 - Provides a record of international aviation CO₂ emissions
 - Accounts emissions units
 - Assesses operator's compliance with the offsetting requirements
- Registry provides a record of:
 - Who holds each emission unit
 - Transfer of emissions units from one account to another
 - When emission units are cancelled to prevent future use



Airline	202x Emissions to offset	Emissions units	Compliance
Airline A	60,000	60,000	OK
Airline B	40,000	40,000	OK

- CAEP work is ongoing
- States can establish their own registries, or groups of States can cooperate to establish joint registries
- Registries track and record aircraft operators' compliance data against their obligations
- State/joint registries communicate with a consolidated central registry, established by ICAO





- EAG oversaw the work related to a global MBM scheme, and built understanding of:
 - Key design elements and implementation aspects for a global MBM scheme;
 - Environmental and economic impacts of various approaches for such a scheme.
- Council agreed on the EAG/15 (Jan 2016) recommendation and established a High-level Group on a global MBM Scheme
 - Composed of 18 high-level representatives
 - To facilitate convergence of views in order to finalize the draft Assembly Resolution text on a global MBM scheme, for consideration by the Council
- The 207th Council in March 2016 agreed on draft Assembly Resolution text for a global MBM scheme, for use by the GLADs to familiarize participants with the draft text



Main Elements

- Background (preamble paragraphs)
- Opening and role of a global MBM (paragraphs 1 to 6)
- Phase-in and distribution of obligation (paragraphs 7 to 9)
- Exemptions and adjustments (paragraphs 10 to 12)
- Technical and administrative issues (paragraphs 13 to 16)
- Implementation mechanisms (paragraphs 17 to 19)



- 20 to 21 March: Cairo, Egypt
- 23 to 24 March: Dakar, Senegal
- 29 to 30 March: Legian, Indonesia
- 4 to 5 April: Utrecht, Netherlands
- 7 to 8 April: Mexico City, Mexico





- Objectives of 2016 GLADs:
 - Provide up-to-date information on ICAO's work to develop a global MBM scheme;
 - Familiarize participants and receive initial feedback on a proposal for a global MBM scheme.
- The GLADs will serve as an important opportunity for participants to prepare for the High-level Meeting on a global MBM scheme (11 to 13 May) and subsequently for the 39th Session of the ICAO Assembly (27 Sep to 7 Oct)



Programme of the Second Round of GLADs

A common agenda for 5 GLADs

DAY 1	DAY 2
Registration	Recap of Day 1
<ul style="list-style-type: none">• Opening ceremony – Welcome address and GLADs objectives and expectations	<ul style="list-style-type: none">• Presentation on the role of carbon markets in the ICAO global MBM scheme
<ul style="list-style-type: none">• Presentation on Overviews of ICAO’s work on a global MBM scheme and a process toward 39th Assembly	<ul style="list-style-type: none">• Discussion on Implementing the global MBM scheme
<ul style="list-style-type: none">• Presentation on Draft Assembly Resolution text – Design elements	<ul style="list-style-type: none">• Closing panel and wrap up
<ul style="list-style-type: none">• Presentation on Draft Assembly Resolution text – Implementation mechanisms	
<ul style="list-style-type: none">• Discussion on Design elements	



Timeline to 39th Assembly and Beyond

