EASA
European Union Aviation Safety Agency

EUROPEAN UNION

Emissions Monitoring Plans

Working for quieter and cleaner aviation.

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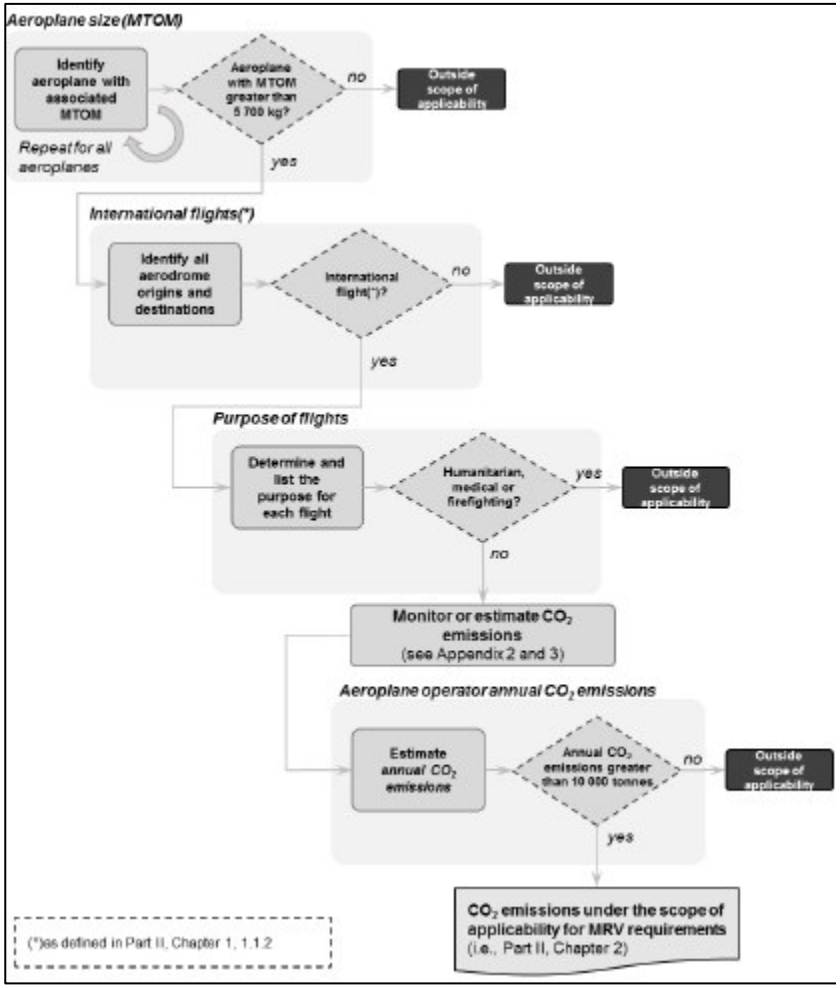
An Agency of the European Union

Monitoring Requirements

- Steps for an operator to identify whether it is under CORSIA requirements:
  - Use of airplane with max. certified take-off mass of 5,700 Kg
  - Activity from international operations on or after 1/1/2019
  - Exclusion of humanitarian, medical & firefighting
  - > 10,000 tCO2



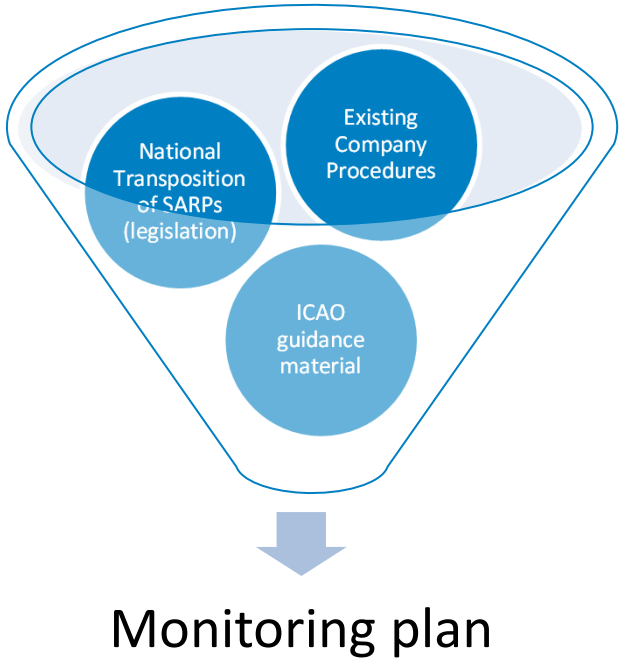
Reference: ICAO SARPS Annex 16, Volume IV, Figure B-1

Deciding on the Fuel Monitoring Method

→ Before taking a decision on the monitoring method we need to understand the structure of the monitoring plan

→ We need to understand the items that need to be described in it and why

Structure of a Monitoring Plan (MP)



1. **Monitoring Plan Versions** → importance of keeping track of the different versions to assure that the approved version is the one in use.

2. **AO Identification and description of Activities** → basic characteristics of the operator including structure and ownership.

3. **Fleet and operations data** → AO must assure that all the sources of emissions are properly tracked and therefore must detail the existing fleet

4. **Monitoring method & calculation** → description of the basic elements of the method and how it will be implemented in practice

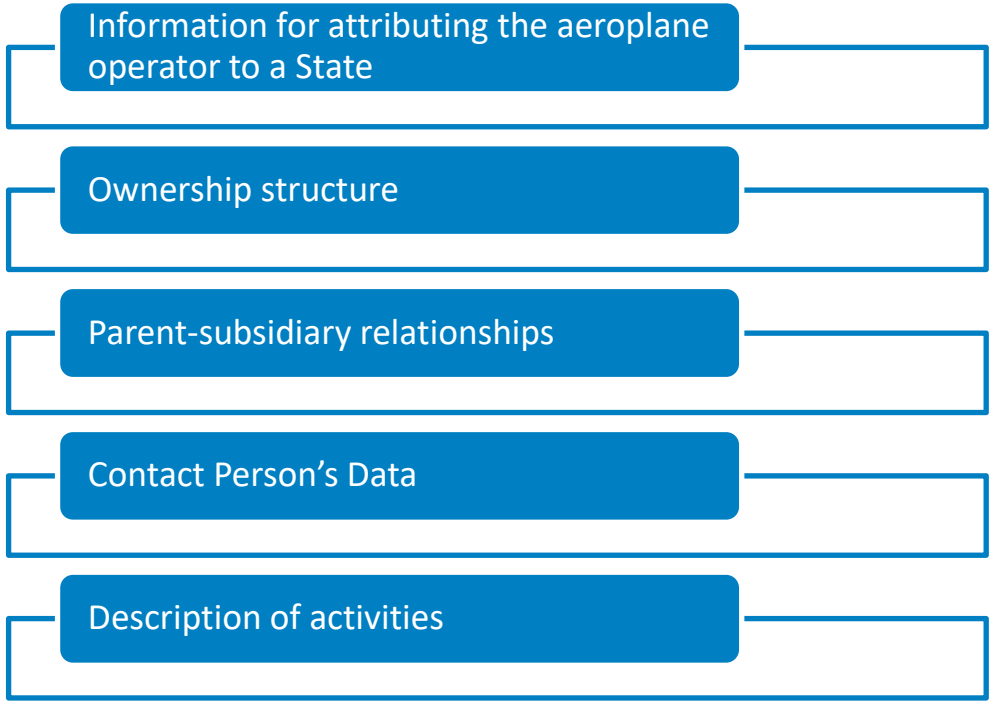
5. **Data management** → description of the way data is managed up to the point of the elaboration of the emissions report

MP: Version Control

- → Operator to track the different versions and changes made to the plan to ensure its traceable for Verifier & Authority
- → Each update of the plan should be recorded, even non-material changes
  - → Material changes: those that affect the actual monitoring process
  - → Non- material: those not affecting the monitoring process, i.e. administrative information, personal data, etc. → however, should be communicated to the authority
- → Need a procedure in place to ensure the monitoring plan is always updated to the latest procedures

MP: Identification of the Operator

→ Administrative information: Basic AO information required for the purpose of contact and administration:

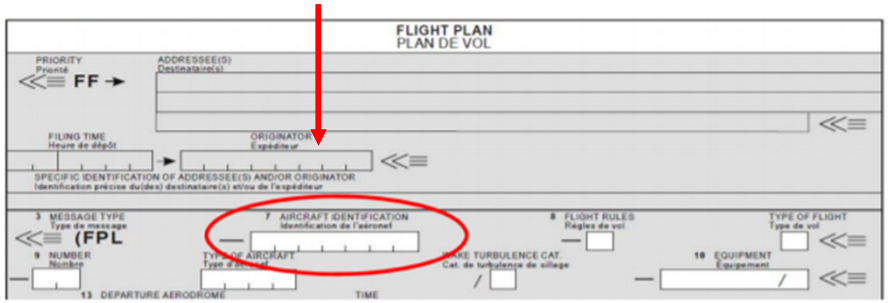


Importance of Flight Attribution

AO to establish how it will be identified for the purpose of CORSIA: Aircraft identification of the AO is of key importance since it will be the element which determines the responsibility (operator) of the flight for CORSIA purposes.

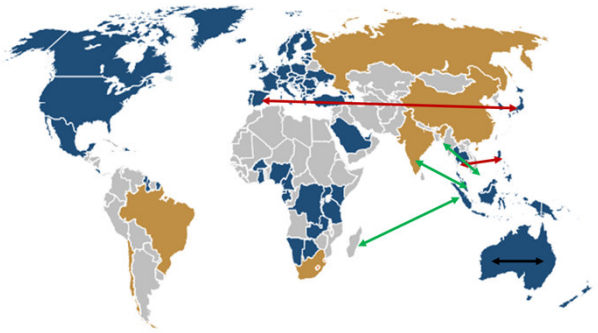
How can an operator be identified?

- → Need to assure that each flight is attributed to a single operator
- → Flight plan used to attribute responsibility → Item 7 of the flight plan:
  - → ICAO designator
  - → Registration marks if in AOC
  - → Aeroplane Owner



Describing Activities of the AO in the MP

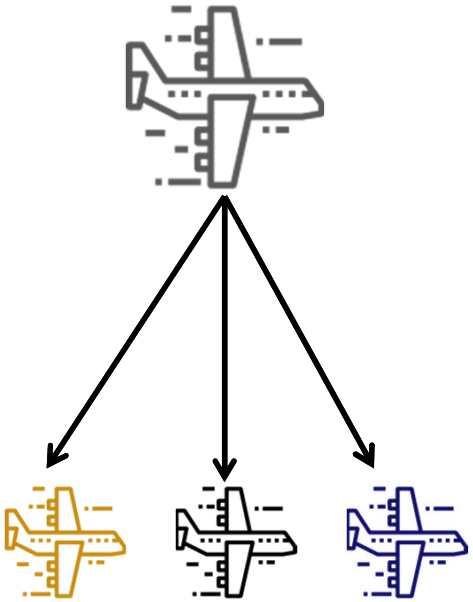
- Plan should describe the scope of aviation activities the AOC permits to carry out, i.e.: types of routes, scheduled/not scheduled, if there are any temporal or regional restrictions



- AO should inform if it's a parent or a subsidiary to other operators

- Important: For CORSIA purposes it will be allowed that parent and subsidiaries are considered as a single entity

Consideration of Subsidiaries



- AO needs to give details of the subsidiary, including the identification for CORSIA purposes
- Conditions to be considered as single entity:
  - Subsidiary is wholly owned
  - Registered in the same state
- AO will need to describe the type of activities carried out by the subsidiary

Emission Sources: Operated Aircraft

No.	ICAO type designator	Fuel type	Number of aeroplanes
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			

→ Need to list the registration marks of the aircraft that perform international flights with MTOM > 5700 Kg

*Aeroplane types are contained in Doc 8643 — Aircraft Type Designators

→ To check this the verifier will require to check with the AOC

→ Types of fuel used by those aeroplanes:

- Jet-A
- Jet-B
- Jet-A1
- AvGas

Emission Sources: Operated Aircraft

→ Description of means of attribution

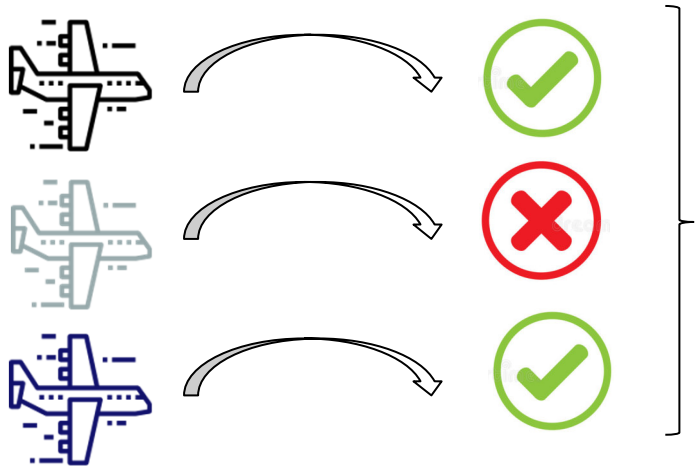
- ICAO Designator
- Registration mark

→ Description of how changes in the aeroplane fleet and fuel used will be tracked & integration in the plan

→ Mention if the same methodology will be followed for additional types

Ensuring Completeness of Flights

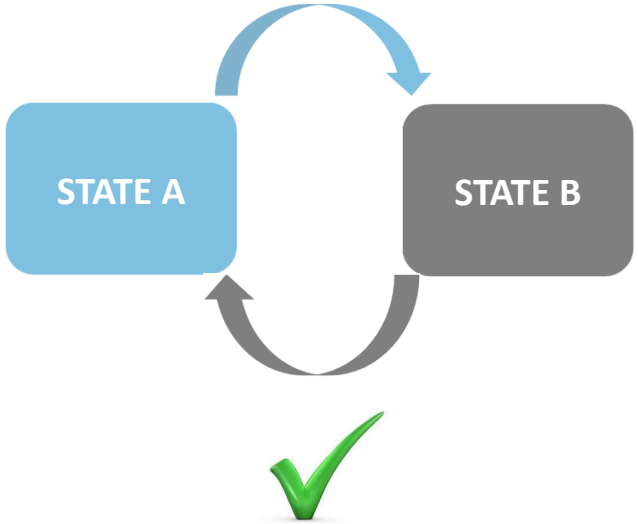
- AO will need to describe:
  - How it ensures the list of tracked flights is complete
  - That only international flights according to SARPs definition are included in the report
  - That only flights between participating states are being accounted for offsetting obligations

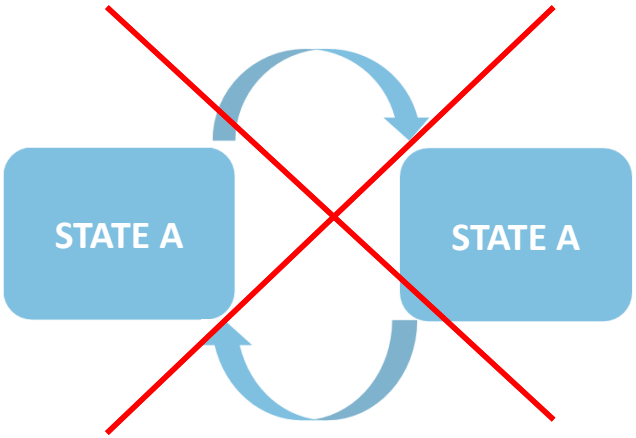


Programing the airline's IT tools and systems will be key in this process

International Flight

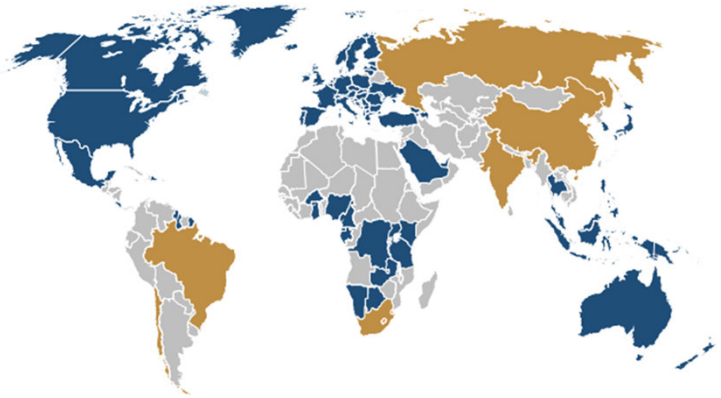
→ Only refers to flights with origin in one state and destination in another. Flights performed in the territory of a State by a foreign operator are not in the scope of CORSIA.





Ensuring Completeness of Flights: State Pairs

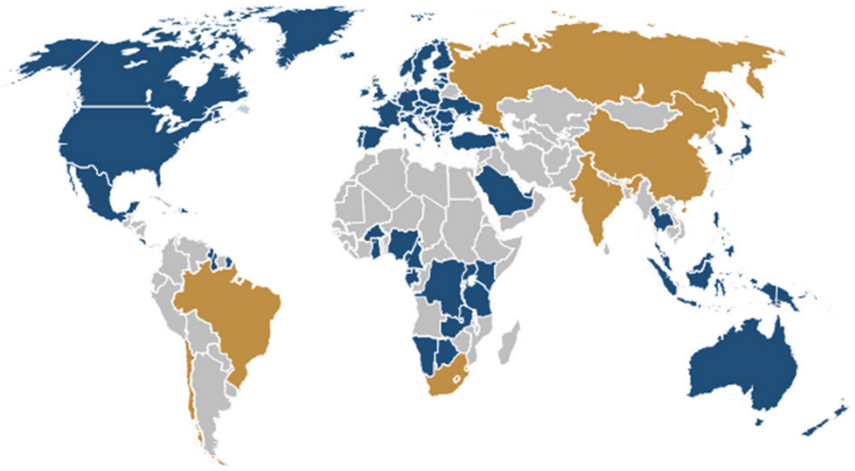
→ Plan to include a list of States to where the aeroplane operator operates international flights



→ State pairs: allows authority & verifier to understand the type of operation, scope of the revision process, detect unusual flights, as well as check later on with the reported data

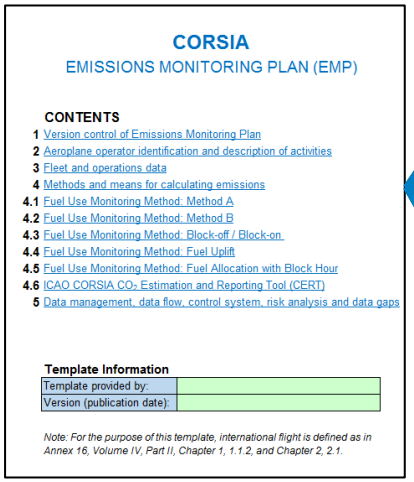
→ Verifier can take this as a reference for strategic analysis

Ensuring Completeness of Flights with Offsetting Obligations



- → AO to describe how it assures that all flights are monitored and how the international flights and flights with offsetting requirements are identified
- → AO should have a system in place to assure that the database of States that have offered to participate is updated→States may opt in or out

Fuel Monitoring Methods Under CORSIA



CORSIA
EMISSIONS MONITORING PLAN (EMP)

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1 Version control of Emissions Monitoring Plan
2 Aeroplane operator identification and description of activities
3 Fleet and operations data
4 Methods and means for calculating emissions
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4.3 Fuel Use Monitoring Method: Block-off / Block-on
4.4 Fuel Use Monitoring Method: Fuel Uplift
4.5 Fuel Use Monitoring Method: Fuel Allocation with Block Hour
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5 Data management, data flow, control system, risk analysis and data gaps

Template Information

Template provided by:	
Version (publication date):	

Note: For the purpose of this template, international flight is defined as in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2, 2.1.

CERT

Method A

Method B

Block-off/Block-on

Fuel Uplift

Block hour

Only eligible for certain AOs

$$CO_2 \text{Emissions} = MF * EF$$

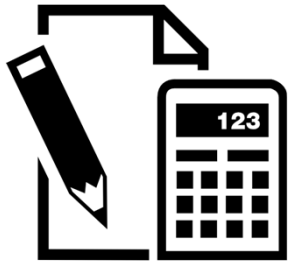
Where:

$$MF = Mass\ of\ fuel\ used$$

$$EF = Emissions\ Factor$$

Constant emission factor for Jet A1: 3.16

Calculation of Emissions



- AO should indicate in the Monitoring plan if they chose a Fuel monitoring method or CERT
- If CERT is used need to provide the input method
  - GCD
  - Block time
- If a Fuel monitoring method is used the operator should describe:
  - procedures for determining and recording fuel density values (standard or actual)
  - If different methods will be used for different aircraft types
  - The systems and procedures to monitor fuel consumption in both owned and leased aeroplane
- Operator shall state if after 2021, it will use CERT for monitoring emissions of flights subject to monitoring but not offsetting obligations

Data Management, Flow and Control

→ AO to describe:

- ✓ Roles, responsibilities and procedures on data management
- ✓ Procedures to handle data gaps and erroneous data values
- ✓ Documentation and record keeping plan
- ✓ Risks associated with the data management processes and means for addressing them
- ✓ Procedures for making revisions to MP
- ✓ Procedures of reporting non-material changes
- ✓ data flow diagram summarizing the systems used to record and store data

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