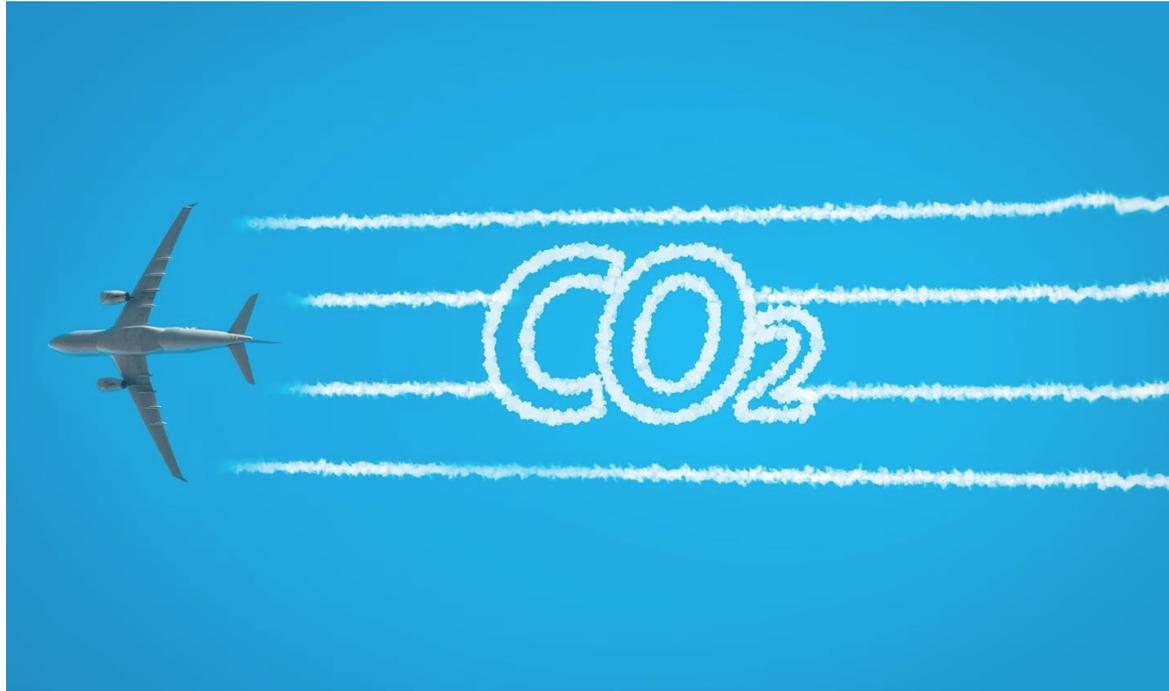


# SOLENTA AVIATION



## CARBON EMISSIONS TRACKING



# GROUP STRUCTURE IN AFRICA



International Association of Oil & Gas Producers

**SAFETY MAKES SENSE**



# CURRENT SOLENTA FLEET



## ERJ 135 + 145

1 x E135 Pax  
2 x E145 Pax



- Niger, Niamey
- Maputo, Mozambique
- JNB, South Africa

## ATR72

1 x ATR72-500 Pax  
5 x ATR72 Freighters



- N'djamena, Chad
- Libreville, Gabon
- Lome, Togo
- Abidjan, Côte d'Ivoire
- Dakar, Senegal

## ATR42-500

2 x ATR42-500 Pax



- Khartoum, Sudan
- JNB, South Africa

**SAFETY MAKES SENSE**



# CURRENT SOLENTA FLEET



**B1900D**  
8 x B1900  
Pax config



- Hassi Messaoud, Algeria
- Dushanbe, Tajikistan

**LET410**  
1 x LET410  
Pax Config



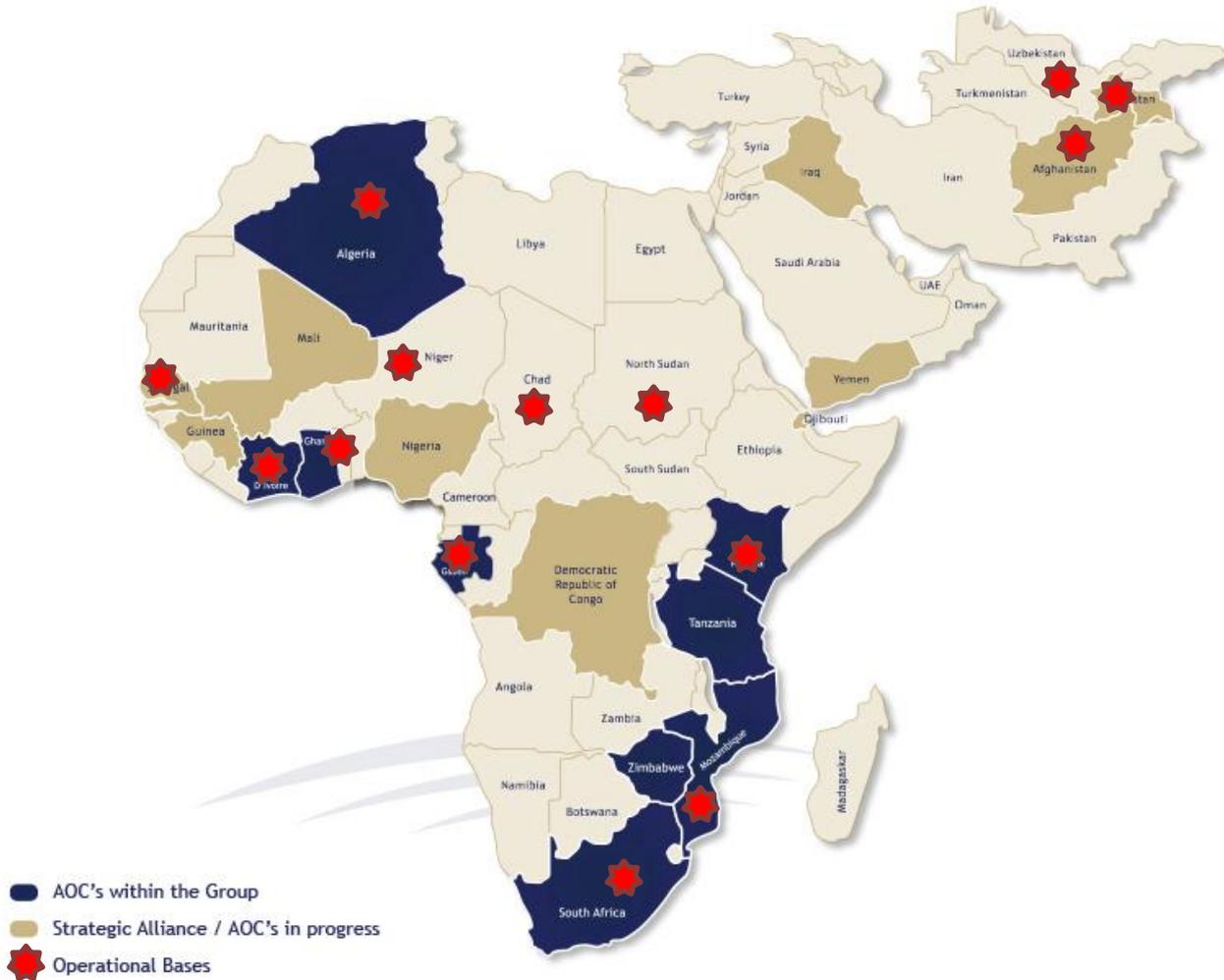
- JNB, South Africa

20 Aircraft in Africa / Middle East

**SAFETY MAKES SENSE**



# COUNTRIES OF OPERATION



**SAFETY MAKES SENSE**



# CLIENTS



World Food Programme



ICRC



ExxonMobil



**SAFETY MAKES SENSE**



# IMPLEMENTATION

- Solenta volunteered in Oct 2018 to take part in the Carbon Emissions Monitoring Program from SACAA.
- Solenta uses ICAO CERT with great circle distance calculations.
- Flight data is manually captured in the Envision MRO system and then exported in excel for ICAO CERT purposes.



## Procedures Implemented:

- Steep Descent Procedures implemented on the ATR Fleet.
- Single Engine Taxi in procedures implemented on ATR and ERJ Fleet.
- Operational Flight Plan software configured to calculate the most efficient Flight Level for current wind and atmospheric data per route.
- Reduction of Aircraft weight by removing all paper-based aircraft and company manuals. Only Solenta SA is EFB Class 2 Approved.

**SAFETY MAKES SENSE**





# CORSIA DATA (2019 / 2020)



## 2019 – 1<sup>st</sup> Year

- Solenta's First year (2019) – 15 520 flights in total, 3953 flights tracked for carbon emissions, **13 185 T** of CO2 emissions on **29 Aircraft**.
- Verification conducted by approved CORSIA VB.

## 2020 – 2nd Year

- Solenta's 2nd year (2020) – 8802 flights in total, 2169 flights tracked for carbon emissions, **5,552 T** of CO2 emissions on **14 Aircraft**.
- Massive reduction in aircraft due to contract cancellations with clients calling force majeure due to COVID.
- Verification conducted by approved CORSIA VB.

**SAFETY MAKES SENSE**





# CORSIA DATA (2021)



## 2021 – 3<sup>rd</sup> Year

- Solenta's 3rd year (2021) – 6727 flights in total, 1241 flights tracked for carbon emissions, 2,347 T of CO2 emissions on 17 Aircraft.

## Main Reason for reduction:

- Additional Humanitarian contracts.
- Increase in Domestic flights within ICAO states.
- Reduction in International flights.
- Aircraft moved from the SA AOC and added on different AOC's within the group.

**SAFETY MAKES SENSE**



# IMPLEMENTATION CHALLENGES



- **Fuel Planning Policy**
  - Client requirement dictates the contingency and final reserve fuel requirements.
  - IOGP requires 10% contingency + 45 min final reserve.
- **Ground Operations**
  - Serviceability of GPU's at African airports.
  - Fuel Availability in Africa is limited due to infrastructure and remoteness.
- **Flight Operations**
  - ATC Flow Control procedures not consistent.
  - Fuel Saving Descent procedures limited by ATC Procedures.
  - Single Engine Taxi – Engine requires longer time than taxi takes.
  - Not all aircraft are fully PBN equipped.
  - ATC's don't use RNAV Approaches. Conventional based approaches take preference.

**SAFETY MAKES SENSE**



# IMPLEMENTATION CHALLENGES



- **Flight Operations...**
  - Delaying start procedures to save fuel:
    - Most parking bays allocated to Solenta Operations are static and requires start from the bay.
- **Fuel**
  - Sustainable Aviation fuel products certified for use in ageing type of aircraft used in African airspaces.
- **New Aircraft Cost**
  - Most operators in Africa do not have the funds to purchase new aircraft with improved fuel efficiency.

**SAFETY MAKES SENSE**



# CORSIA VERIFICATION CHALLENGES



- **Auditing framework used by Verifiers**
  - Primarily designed for Scheduled Operators.
- **Verifiers require movement evidence from ATC**
  - ATC Infrastructure in Africa does not cater for tracking of aircraft.
  - ADS-B coverage very limited in Africa.
  - ATC Invoices arrive up to 2 years after a flight.
  - Data Mismatch between ATC invoices and company data.
  - ATC Data is unreliable.
  - Solenta uses Satellite tracking on all aircraft and substituted the ATC data requested by VB.
- **Verifiers require Schedules as evidence**
  - Non-scheduled operators do NOT operate according to Schedules.
- **Manual Data Capture**
  - Flight Folio / Tech Log data is captured manually for each different AOC.
  - Capturing errors with incorrect airport data due to human interface.

**SAFETY MAKES SENSE**



# CORSIA VERIFICATION CHALLENGES



- **Electronic Data Capturing - EFB**
  - Due to covid, the electronic Operational flight plan EFB systems were put on hold due to cost. Resulting in manual capturing of flights.
  - Other Solenta Group Companies are not yet EFB approved. Manual data entry.
- **Dedicated Carbon Emission Personnel**
  - Operational structure and finances do not allow for dedicated Carbon emission tracking personnel.
- **Humanitarian / Medical Flights**
  - Verifiers require copies of flight plans as evidence for humanitarian operations where field 18 states STS/HUM or STS/MED
  - SA Regulations require us to only keep post flight documentation for 90 days.
  - Countries we operate in, don't always provide accepted copies of flight plan or reference numbers.

**SAFETY MAKES SENSE**



# CORSIA VERIFICATION CHALLENGES



- Interaction with VB
  - Year 1 was a very frustrating process due to the lack of understanding from both VB and the Operator on CORSIA.
  - Year 2, VB seem to understand Non-Scheduled Operations better.
  - VB's framework of reference was based on Scheduled operators.
  - VB was sceptical about accepting data provided as evidence due to the type of operations:
    - Humanitarian – Contracts / Clearances as Evidence instead of flight plan.
    - Charters – All Non-Scheduled Operations.
  - VB detected gaps in our data due to lack of processes in our systems:
    - Humanitarian Flight plans – Not all FP's contained correct STS/HUM.
    - Departure/Arrival Aerodromes not matching – In flight turn backs.
    - Manual data Entry mistakes made – Incorrect airfields.

**SAFETY MAKES SENSE**



# CORSIA VERIFICATION OUTCOME



- Overall Experience with VB
  - Time Zone Challenges for VB auditor – Auditor made a concerted effort to accommodate us.
  - Understanding of Non-Scheduled operations needs to be expanded on for VB Auditors.
  - VB Auditors were always accommodating and Professional.
  - VB Auditor assisted with explaining CERT’s functionality.
  - Requirement for more local, Aviation specific VB Auditors.
  - Professional Verification Audit report issued.

**SAFETY MAKES SENSE**



# IMPROVING CARBON EMISSION TRACKING FOR OPERATORS



- **More Practical Workshops for Operators**
  - Easy to understand training material.
  - Step by Step Guidelines for Operators.
  - Do's and Don'ts of collecting Carbon Emission Data and importing to CERT / FRED+.
  - Quick Reference Guides and Videos.
- **Aircraft Manufacturers**
  - Focus on safe operational procedures operators can use to “save fuel”, in turn reducing carbon emissions.
- **ATC Flow Control**
  - Better Flow control procedures for African airports. Better flow control results in better fuel savings.

**SAFETY MAKES SENSE**



# IMPROVING CARBON EMISSIONS OVERALL



- Carbon emission tracking is very limited and specific (State-specific / International Routes only).
- No Tracking required for domestic flights.
  - In Southern Africa, Domestic Air Travel is a very large portion of our air traffic.
  - Pre-Covid, the Johannesburg – Cape Town route was classed the 11<sup>th</sup> busiest route in the world.
- Solenta only started including Domestic flights in 2020's calculations on advice from the VB Auditor.

The CORSIA program and auditing framework is limited with regards to true carbon emission tracking and the CORE function of reducing carbon emissions might be lost.

**SAFETY MAKES SENSE**





**WE ONLY HAVE 1 EARTH – LET’S TAKE CARE OF IT !!!**

**SAFETY MAKES SENSE**





# QUESTIONS?

**SAFETY MAKES SENSE**

