A quick guide to focus area 1 on SAS Sustainability Agenda

STODE-E
Version 1

SAS SUSTAINABILITY

INCREASE FUEL EFFICIENCY

Continuous fleet renewal is a vital part of our efforts to reduce greenhouse gas emissions from our aircraft operations. SAS' strategy is to ensure long-term profitability through a well-balanced fleet plan.

As we are phasing out the 737-fleet, the aircraft are either returned to the owner, sold for spare-parts or sent to recycling. Most parts of an aircraft can be used for recycling and the share increases for each generation.

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

To increase fuel efficiency, we focus primarily on the following SDGs

DID YOU KNOW

that we will have a single type fleet (Airbus) in SAS Scandinavia by 2023? By then we will have 80 A320neo, eight A350 and three A321LR in our fleet.

UPGRADING OF EXISTING FLEET

SAS has continuously upgraded the B737-fleet, with new engines and interior to reduce emissions. The interior is also upgraded on the A320ceo-fleet. An example of the upgraded interior is replacements of the carpet, where the old carpet weighed 1,695g/sqm, and the lighter ones weigh 1,250g/sqm. For a single A320, this means that the carpet is approximately 38kg lighter.

SINGLE EUROPEAN SKY

A development toward a shared European air space, "Single European Sky" will result in more efficient routes. The project encompasses all aspect of Air Navigation Services and uses modern technology to achieve substantial improvements. The ambition is to decrease emissions with

10%

CO_2 PER FLIGHT IN AVERAGE[1]

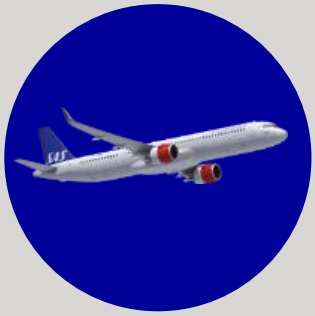
1) https://www.sesarju.eu/approach/environment

LONG HAUL – A350 AND A321LR

A350 reduces fuel consumption with more than

30%

per passenger compared to the A340 it replaces.
8 aircraft ordered with first delivery in the end of 2019.



A321LR aircraft is expected to reduce fuel consumption with

15–18%

compared to similar aircraft of the previous generation.
3 aircraft are leased, and first delivery will be summer 2020.

RIGHT SIZING, LIGHTER AIRCRAFT AND BEHAVIOUR CHANGE

For increased fuel efficiency

RIGHTSIZING
Aircraft of different sizes available through regional production partners.

ALL EMPLOYEES HAVE AN INFLUENCE
In our efforts to reduce emissions all employees can contribute.

"GREENER FLIGHTS"

Our aircraft are getting lighter and lighter – this has a big impact on fuel consumption. As a passenger, you can contribute by bringing less luggage on board. Additionally, SAS attempts to perform green flights to minimize climate impact. This enable substantial fuel and cost savings, emission reductions as well as a decrease in noise from the flight.

"GREEN DEPARTURE"

By optimizing the network, reducing unnecessary weight onboard, securing the right size of aircraft, planning the most effective route and team work between ground personnel and cabin/flight crew at the gate, the journey can begin. At the gate, the engines are started as close to departure as possible and depending on the conditions taxi on one engine is conducted.

SHORTEST ROUTE POSSIBLE AT OPTIMAL ALTITUDE AND SPEED

On the way to, and at cruising altitude, the speed is optimized which reduces fuel consumption. The pilots have contact with Air Navigation Services (ANS) to ensure the best possible route. In general, the optimal altitude and speed is flown considering operational constraints or priorities.

"GREEN APPROACH"

As often as possible, the approach is planned to be a continuous descent. This allows the aircraft to descend toward the runway in the most optimal glide-path with the engines on idle thrust.

SAS was a pioneer with the first "Green Approach" at Arlanda in 2006. Since then the methodology has been introduced at other airports.

AFTER LANDING

By optimizing ground movements, preferably taxiing on one engine when possible as well as choosing the most effective route to gate, further emission reductions are made possible. Ground based electricity is connected to the aircraft as quickly as possible at the gate, to avoid using aircraft engines more than necessary.

AIRBUS 320NEO

INNOVATION WHERE IT MATTERS

The new A320neo have 15-18% lower fuel consumption compared with aircraft of previous generation.

MORE EFFICIENT AERODYNAMICS
winglets reduce fuel consumption

LIGHT-WEIGHT CABIN INTERIOR
With modern feel, better materials and lower weight enabling fuel savings

LESS NOISE
50% reduction in noise footprint

REDUCED EMISSIONS
15-20% less CO_2 and 40% less NOX emissions

ACTIVITIES STARTING 2018

- A320 NEO ROLLOUT TODAY 24/80 AIRCRAFT
- BIOFUEL USED ON FLIGHTS FROM STOCKHOLM, KALMAR AND SAN FRANCISCO

ACTIVITIES STARTING 2019

- A350 START ROLLOUT
- SAS CO_2 OFFSETTING AND BIOFUEL UPGRADE PROGRAM
- PARTNERSHIP WITH PREEM REGARDING BIOFUEL

ACTIVITIES STARTING 2020

- A320 NEO AND 350 ROLLOUTS COMPLETED 2023
- A321 NEO LR ROLLOUT STARTING

Target 2030
25%
Reduced CO_2

2018/2019
Evaluation process
Mid-size aircraft

2018/2019
14 A320neo
1 A330
1 A350

2019/2020
10 A320neo
4 A350

2020/2021
3 A320neo
4 A350
First A321LR introduced

2021/2022
3 A320neo
4 A350

2022/2023
3 A320neo
4 A350

BY END OF 2022/2023 SAS PLAN TO OPERATE A SINGLE TYPE SHORT HAUL FLEET WITH AIRCRAFT LARGER THAN 120 SEATS.

PLANNED DELIVERY OF AIRCRAFT

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030