

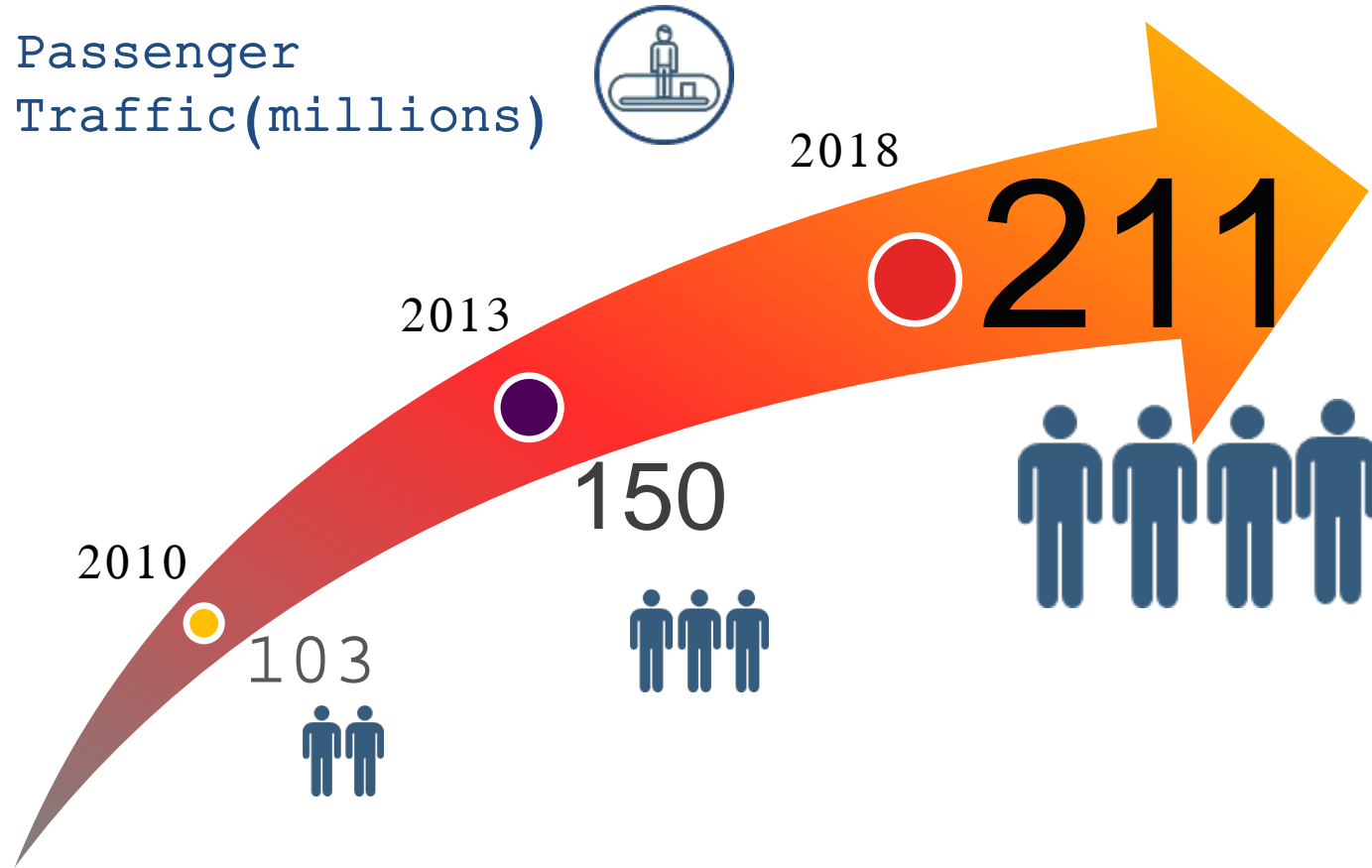
ICAO EUR Environment Task Force

Environment Capacity Building Activities

Emre ZAIMOGLU



Facts and Figures

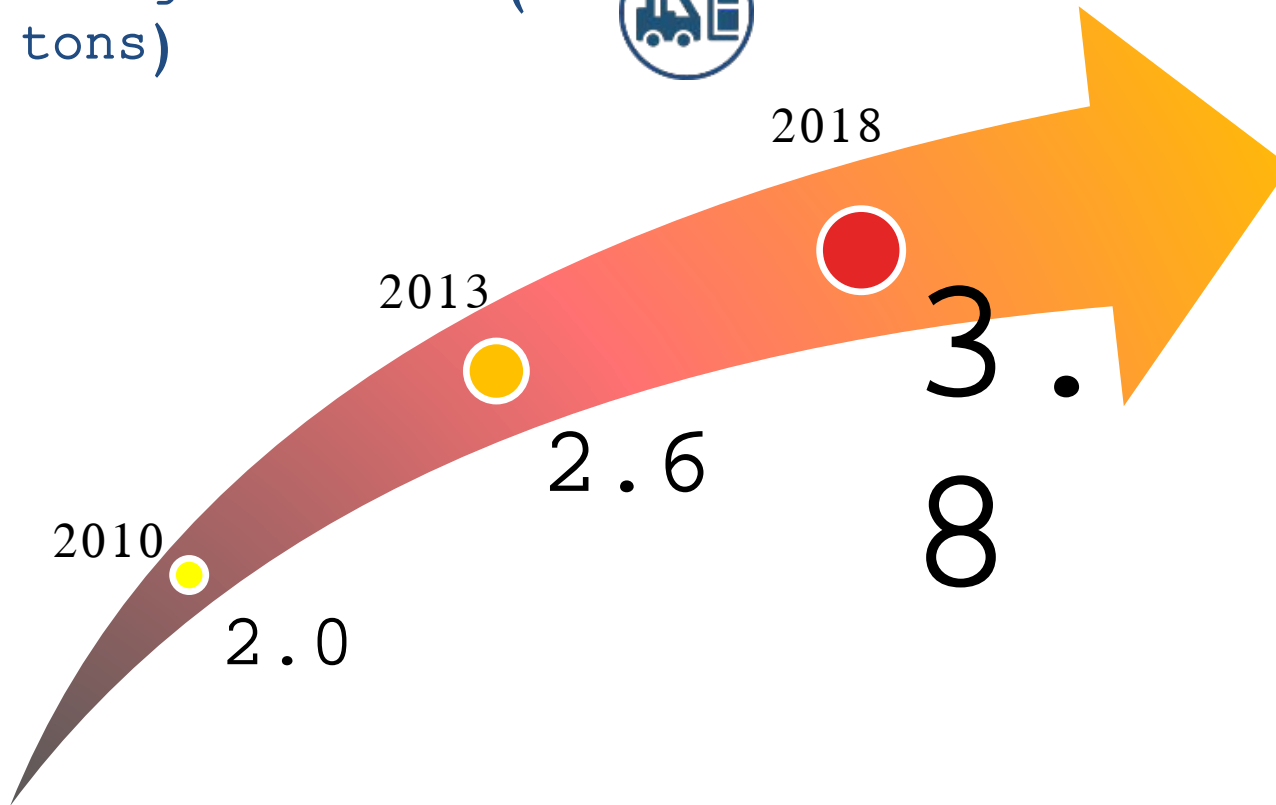


104%

increase since 2010

Facts and Figures

Freight Traffic (million tons)



90%

increase since 2010

Facts and Figures

- As of November 2018, Turkey has 59 airports open to civil commercial air traffic.



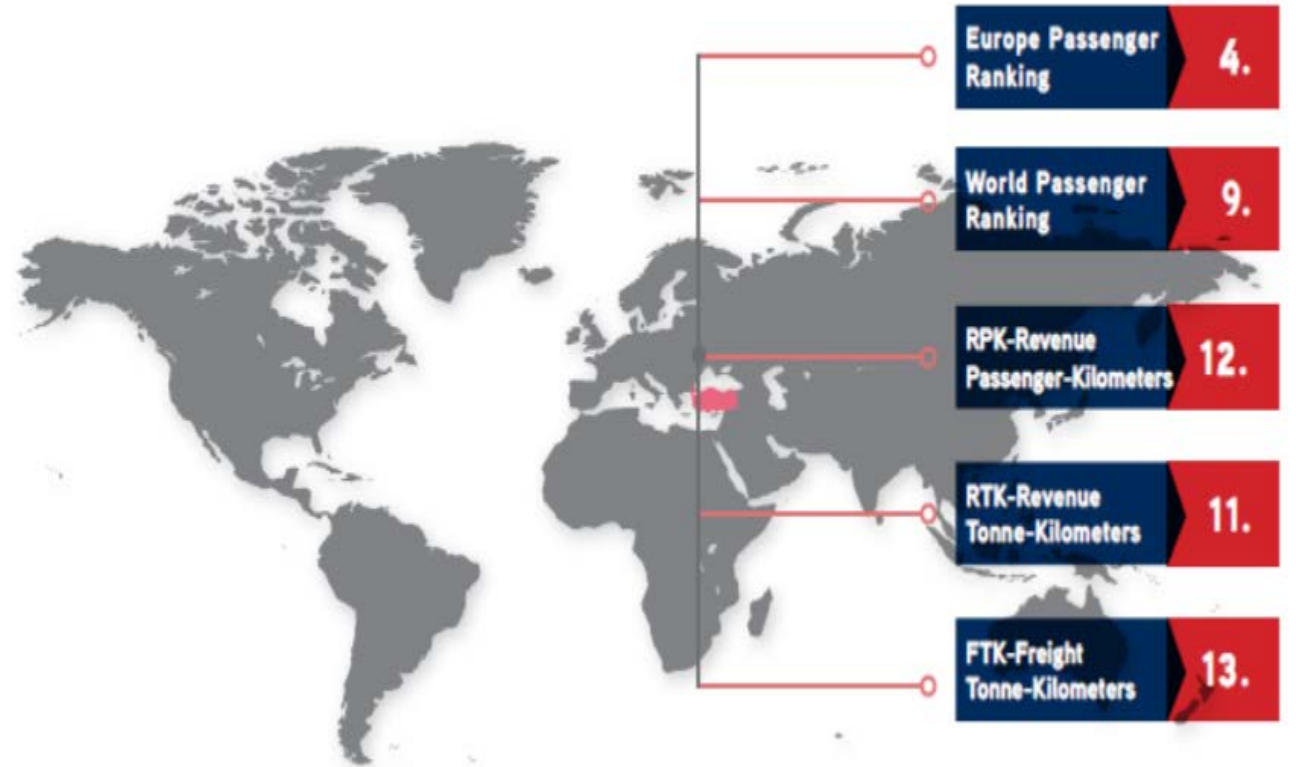
Facts and Figures – ICAO 2017 Statistics

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According to Annual Reports of the ICAO Council published in 2017 Turkey ranks:

- 12th worldwide by RPK,
- 11th worldwide by RTK,
- 13th worldwide by FTK.

Figure shows the Turkey's rankings in global air transportation industry for the year 2017.



Istanbul Grand Airport - IGA



- **New (3rd) Airport in Istanbul**
- **6 Runways, 150M Passenger**
- **1st Phase – 90M Pax – 1st Q of 2018**

Action Plan History of TURKEY

The first state action of Turkey is prepared and submitted to ICAO in 2011.

In 2018 it is fully renewed and submitted to ICAO.

The second version is prepared in 2015.



Steps Followed:

- Contacted with ICAO
- Obtained a feedback from ICAO for renewal of the Action Plan
- Attended to ICAO Regional Seminar on States' Action Plans and Carbon offsetting and Reduction Scheme for International Aviation (CORSIA)
- Learned related ICAO Docs and used the tools EBT, IFSET for the first time
- Requested a workshop from ICAO in Turkey
- Organized a regional workshop in İstanbul



Steps Followed:

- Invited State Representatives
- Invited Stakeholders
 - Airport Operators
 - Ground Services
 - Terminal Operators
 - Airline Operators
- Established Nation Action Plan Team
- Learned the content of an Action Plan
- Requested all essential information from stakeholders



Steps Followed:

- Worked very closely with each of the stakeholder
- Gathered the data
- Utilized EBT tool
- Incorporated all the information to the plan
- Sent it to ICAO via APER group
- Obtained feedback from ICAO staff
- Corrections made and re-submitted
- Published it on the ICAO web site



State Action Plan of TURKEY

ICAO State Action Plan
for
Emission Reduction
TURKEY



June 2018

- The first Voluntary Action Plan submitted to ICAO on January 2012
- On June 2015, Turkey updated the Action Plan.
- Latest state action plan submitted to ICAO in 2018 by new focal points in Turkish DGCA.



State Action Plan of TURKEY

- Aviation and Climate Change Action Plans Expert Group (ACCAPEG) responsible from State Action Plans at ECAC, recommended an approach for ECAC States to follow for their State Action Plans.
- As one of the ECAC Member States, Turkey has updated its State Action Plan according to recommended European Approach by ECAC after 142th ECAC DGCA meeting.
- Turkey, like all of ECAC's forty-four States, is fully committed to and involved in the fight against climate change and works towards a resource-efficient, competitive and sustainable multimodal transport system and that includes the measures taken at supranational and national level.



State Action Plan of TURKEY

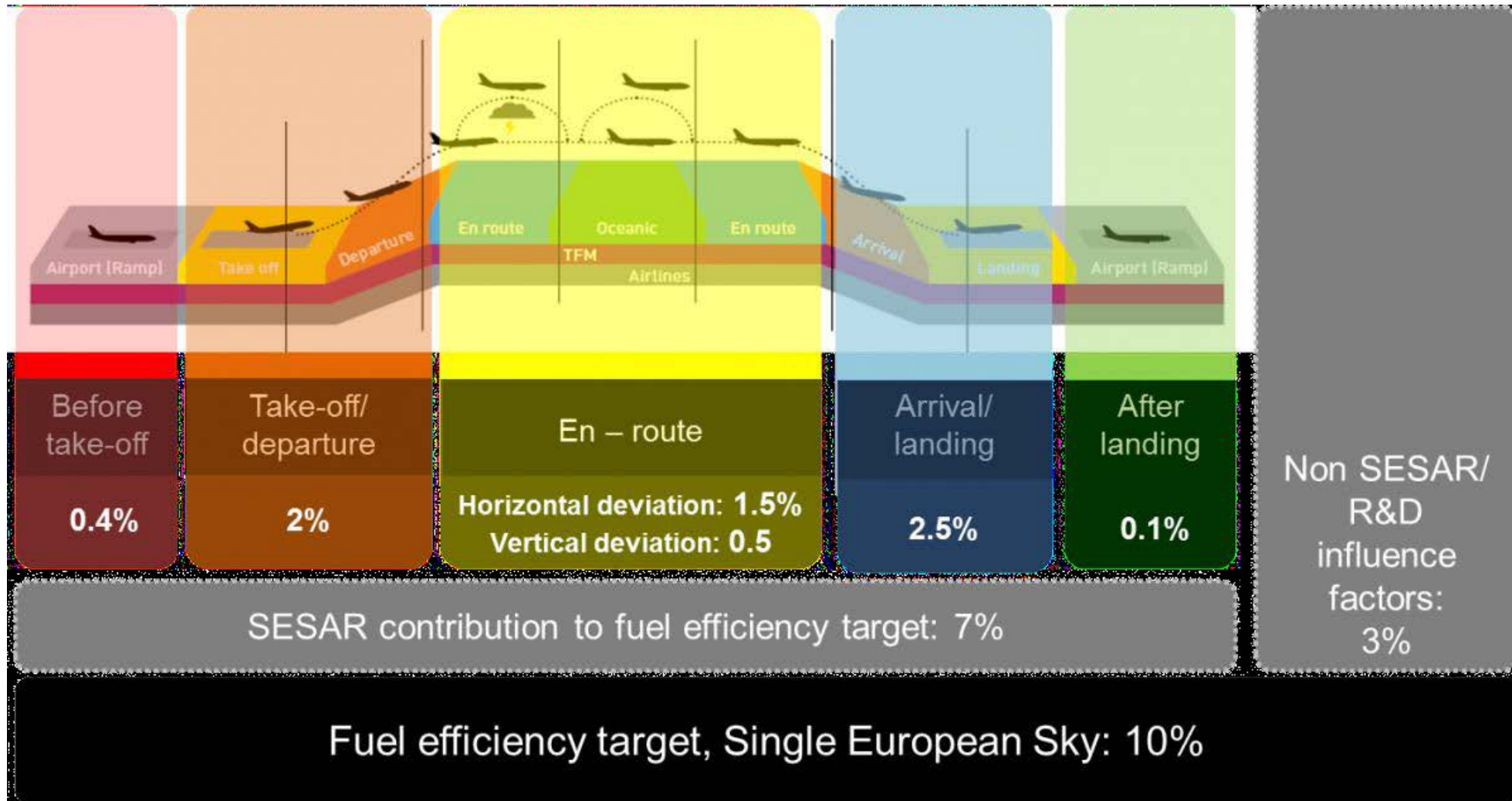
- The baseline scenario is selected in the absence of any of the mitigation actions. The data used (2010, 2016) and forecasts (for 2020, 2030 and 2040) were provided by EUROCONTROL for this purpose.
- Measures taken at Supranational Level
 - Emission reductions at source
 - Research and development on emission reductions technologies
 - Development and deployment of low-carbon, sustainable alternative fuels
 - Improvement and optimisation of Air Traffic Management and infrastructure
 - Market Based Measures; purchase of carbon units that foster emission reductions in other sectors of the economy



Measures taken at Supranational Level

- Aircraft Related Technologies
 - Aircraft emissions standards, European Member States fully supported the work achieved in ICAO's Committee on Aviation Environmental Protection (CAEP), which resulted in an agreement on the new aeroplane CO2 Standard.
- Improved Air Traffic: The EU's Single European Sky Initiative and SESAR
 - The European Union's Single European Sky (SES) policy aims to reform Air Traffic Management (ATM) in Europe by;
 - Triple the capacity of ATM systems
 - Reduce ATM costs by %50
 - Increase safety by a factor of 10, and reduce environmental impact by %10 per flight.





Measures taken at Supranational Level

- Economic/Market Based Measures

- The EU Emissions Trading System

- 500 aircraft operators participating in the cap and trade approach to limit CO2 emissions
- Turkish aircraft operators who have intra-EU flights are monitoring, reporting and verifying their emissions each year.
- By 30th April each year, aircraft operators have to surrender allowances to cover their emissions from the previous calendar year .

- CORSIA Scheme



State Action Plan of TURKEY

- Measures taken at National Level ; Emission reduction actions undertaken in the country, including by stakeholders

➤ Aircraft Related Technology Development

Aircraft orders of Turkish Airlines in order to have less emissions and high fuel efficiency

Aircraft Model	2018	2019	2020	2021	2022
B737-9 MAX	-	5	5	-	-
B737-8 MAX	7	12	19	15	12
A321 NEO	3	18	18	20	18
TOTAL	10	35	42	35	30



State Action Plan of TURKEY

- Measures taken at National Level

➤ Aircraft orders of Pegasus Airlines In order to have less emissions and high fuel efficiency



- As the end of 2018, THY has 309 and Pegasus has 81 aircrafts.

- Total 505

State Action Plan of TURKEY

- Turkish airlines has established a fuel efficiency program in which several fuel consumption reduction practices are implemented. Several programs have been implemented for reducing the emissions within Turkish Airlines

SINGLE ENGINE TAXI IDLE REVERSE DOW SPARE TIRE CARRYING CARBON BRAKE SKYLIFE MAGAZINE WEIGHT
 AIRCRAFT WASH PAINT A Z F W V S E Z F W FUEL KPI'S
 FUEL DEGRADATION ALTERNATE AERODROMES COST OF WEIGHT FUEL KPI'S
 CDL TRACKING WINGLET A C A R S ANNUAL BUDGET DATABASE
 A P U FDM HOLDING FUELS AERODROME SAVING TEAM OPTIMUM LANDING SPEED
 % 3 ERA CONTINGENCY FUEL ROUTE OPTIMIZATION DWH FUEL DATABASE
 CAPTAIN EXTRA FUEL REDUCED FLAP TAKE-OFF IST HUB FUEL LOADING
 STATION VISITS STATISTICAL TAXI FUEL PLANNING
 AJ OVENS EU ETS COFG STATISTICAL PASSENGERS + LUGGAGE WEIGHT
 REDUCED FLAP LANDING STD-3 FLIGHT PLANNING ULD / CONTAINER WEIGHT B777 POTABLE
 FWZ PANTRY CODE GPU REQUIREMENTS / OPTIMISATION FWZ POTABLE WATER WATER CHART
 NADP 2 ENGINE WASH SHARKLET COST INDEX DISPATCH EXTRA FUEL PLANNING



State Action Plan of TURKEY

- In terms of retrofitting and upgrade improvements, there are many projects which has been ongoing for a long time
 - Aircraft weight reductions
 - Airframe/engine drag/aerodynamics/wash/paint
 - Maintenance saving equipment
 - Empty weight magazines services
 - Duty free removal (Equipment + magazines)
 - Engine core water wash
 - Engine and APU build standard
 - Empty weight cabin
 - Empty weight catering
 - Empty weight potable water



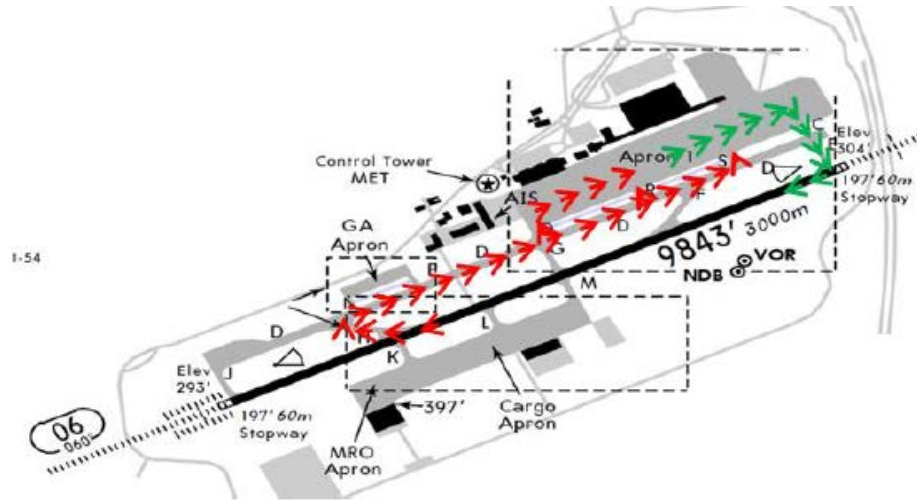
State Action Plan of TURKEY

- Improved Air Traffic and Infrastructure
 - Single engine taxi procedures
 - Observance of departure and departure times in Flight Plans
 - Climb-cruise-descent-final approach procedures
 - Controlled commander extra fuel requests
 - Optimized new flight plan system
 - Route OptimizationsPBN (Performance Based Navigation)
 - The Closest Alternate airport selection



State Action Plan of TURKEY

- For instance, in order to reduce emissions in İstanbul Sabiha Gökçen International Airport, additional taxi way has been built.



Green Airports Project

- In 2009, Turkish DGCA launched a project that systematically decreases the existing or future damages of airport establishments on the environment and human health.
- Aim is to have a better and environmentally friendly airports with the coordination of Turkish Standard Institute.
- The airport operators and service providers at the airports, which comply with the certain requirements that DGCA designated, will achieve to obtain “**Green Company Certificate**”



Green Airports Project

- Supreme board should be established to be in charge regarding climate change, greenhouse gas and energy topics.
- A procedure should be adopted to control greenhouse gas emission.
- Monitoring fuel and energy consumption
- Developing goals to reduce greenhouse gas and energy
- Should adopt procedure and control mechanisms to minimise emissions during operations
- All personnel should be trained in order to create awareness of the importance of greenhouse gas emission.



Green Airports Project

- DGCA shall provide to the organizations and establishments **20% of reduction** on service tariffs (permit, license certificate costs) which comply with the relevant requirements for that airport.
- In addition to 20% reduction, in case of all organizations and establishments at the airport in question provide all necessary conditions determined by DGCA, the reduction **rate will be increased to 50%** and airport achieves to obtain «Green Airport Certificate».



Green Airports Project

- Green Airport Project is clearly raising the bar in terms of quality at the airports in Turkey and enhancing environmental awareness across the airline and airport industry.
- With the incentives provided by Green Airport Project, establishments gained Green Company Certificate are rise to **152 companies** so far including airport operators, ground handling service providers and airlines.



