FLIGHT EFFICIENCY PLAN 2015
ENAV’s Flight Efficiency Plan aims to contribute proactively to lowering Airspace User’s operating costs, reducing fuel consumption and pollutant emissions related to flight operations.

Since its first disposition in 2008/2009, the planned interventions are meant to ensure a greater accessibility of the airspace with more available routes for the Users, through a continuous process of review and improvement of the air navigation system that can contribute to fly safely and efficiently.

The FEP is strictly linked to the successfully application of the PBN in Italy that is expected to improve the ATS route network other than grant benefits over the global efficiency of ATM. It also contributes to the fulfilment of “Italy’s action plan on CO2 emissions reduction” that the States draw up - within the ECAC / ICAO framework – as a contribution to the achievement of the overall objectives of reducing the environmental impact of aviation and contrast changes climate.

ENAV’s Customer Care has promoted several initiatives to meet the Airspace users’ needs that have been significant for the definition of ENAV’s annual FEP.
Willing to achieve the objectives of rationalization and improvement, this three year plan 2015-2017, includes actions which are clustered in four main areas:

- En-Route - Airspace design and network availability;
- TMA - Design and use;
- Airport operations;
- ATCOs awareness as regards to flight efficiency.

Since the first release of ENAV's Flight Efficiency Plan, the measures that have been implemented allowed considerable savings in terms of fuel consumption and GHG emissions thus producing their positive effects year after year in accordance with the airspace users' expectations.

Most of the actions planned for 2014 were finalized, sometimes also ahead of time; it is worthwhile to mention the Airspace Reorganisation project, finalised in mid-November 2014, and the full implementation of A-CDM in Malpensa.

The effect of introducing, in mid-December 2013, the availability of direct and near direct routes for overflights operating at night and during the weekends has be appreciated during 2014; it has brought to substantial reductions in the length of the planned routes between entry and exit points in the Italian airspace.

Outcomes from the implementation are estimated through monitoring carried out year by year. Here are reported the indicators assessed for the actions finalized in 2014.

In the framework of the National Performance Plan endorsed according to the EU Regulation n.691/2010 and n.390/2013, the Italian NSA monitors ENAV’s FEP because of its environmental relevance.
EN-ROUTE AIRSPACE DESIGN AND NETWORK AVAILABILITY

The Italian airspace and its route system is continuously improved exploiting the area navigation capability mostly within the Blue Med FAB framework. Hand in hand, the Route Availability Document (RAD) is updated on a regular basis with the aim to both optimize the network and better balance capacity and efficiency.

During these years, a particular attention has been paid to the improvement of flight profiles, by gradually making available higher flight levels for most domestic city pairs and certain cross-border connections.

ENAV’s annual Customer Care survey further points out – with an average grade of 4 out of 5 – that the User’s acknowledge the Flight Efficiency benefits resulting from ENAV’s 2014 Airspace Reorganization project and the tactical behavior of ENAV’s ATCOS in providing direct routings.

These interventions facilitate the application of CDO/CCO as well as matching the needs of a TMA development.

**2014 Performance**

- $\Delta$ Km: -1,525,000
- $\Delta$ T Fuel: -9,240
- $\Delta$ T CO2: -29,106
Plan 2015 - 2017

2015

Free Route in Italy - Phase 2: lowering Night and Weekend Routes MON-FRI 2100-0600 in Winter/ MON-FRI 2100-0500 in Summer /H24 in Weekend from FL365 to FL315
New routes for northbound traffic between Roma ACC and Padova ACC and Realignment of routes
Changes in Route time availability from NGT-WE to H24
Review of CDR classification following the implementation of military areas with high flexible use, first phase: IONIO area

2016 - 2017

Free Route in Italy - Phase 3: Implementation of “Full Free Route ” H24, from FL365 and above, and lowering of ATS Routes to FL365
Review of CDR classification: second phase SICILY area, other phases to be planned in coordination with AMI
Coordination with FAB Blue Med Partners to improve both intra-FAB and trans-FAB route network:
• New interface ATS routes for Italy-Greece-Malta airspaces
• Implementation of intra-FAB BM DCTs for selected routings (FAB BM entry to FAB BM exit and/or between intra-FAB BM city-pair)
• Demo trial for inter-FAB Free Route (FABEC-BM)
Network optimization based on traffic demand and harmonization of the new RAD implementations

Achievements 2008 - 2014

Implementation of new routes, extensions, realignments
Reorganization of route network portion over ALG area and Verona area
Conversion of 19 DCT into direct ATS routes and time extension of their availability
Implementation of 51 dedicated direct routings, available night-time or H24
User preferred flight level through raising or removal of level cappings for city-pairs: improvement of X RAD constraints
Cancellation of some RAD constraints in winter
Network optimization on the basis of traffic demand
Increase of hourly network availability in winter seasons
Reorganization of route network portion over BZO area
Reorganization of route network for Milan and Rome U/FIRs
Streamlining routes ACC Rome area
Summer season two more hours clear of RAD constraints every day
Improvements in flight profile Italy to/from Tunisia

Free route in Italy (FRI): first phase implemented in upper airspace between FL365 and FL460 during night time, weekends and holidays through the implementation of 63 direct or near-direct routings and the extension of the temporal availability of some ATS routes

Redesign of the Italian Airspace and ACC Airspace Reorganization
Reorganization of route network portion over FRZ (Florence VOR)
Conversion of DCT into direct ATS routes and extension of their availability
Improvements in flight profile Italy to/from Spain, France.
Continuous improvements to the network availability on the basis of traffic demand
The optimization of the air traffic management and the reduction of flight distance and time are accomplished through a rational and efficient use of airspace by means of new Instrument Flight Procedures and of the CTRs reorganization.

Several link routes and IFP have been updated in the recent years also to reduce the distances, in so meeting the Customer’s expectations of mile savings.

New Instrument Flight Procedures, also enabled by PBN, will be designed with the aim to facilitate Continuous Descent and Climb Operations whenever feasible.

**2014 Performance**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ Km</td>
<td>-685,000</td>
</tr>
<tr>
<td>Δ T Fuel</td>
<td>-1,880</td>
</tr>
<tr>
<td>Δ T CO₂</td>
<td>-5,992</td>
</tr>
</tbody>
</table>
Plan 2015 - 2017

Reorganisation TMAs
• ROMA TMA, Spring 2015
• MILANO TMA, Autumn 2015

Reorganisation CTRs: LIMJ, LIPY, LIBP

New implementations or improvements of P-RNAV SIDs/STARs: LIEA, LIBD, LIRN, LICJ, LIPX

Implementations of RNP Approach procedure: LIBD, LICG, LIEA, LIEO, LIRN, LIME, LIMJ, LIMF, LIPX, LIRQ

Implementation of CDO with IFP: LIRF, LIMC, LIML, LIPX, LIPZ, LIPE, LIEO, LIMF, LIRQ, LICJ

CCO application without dedicated procedures (e.g. radar vectoring): Venezia, Verona, Olbia

CCO application with IFP

Implementation of APV SBAS procedure for helicopters

Achievements 2008 - 2014

Reorganization of LICJ, LIPY, LIPE, LIME, and LIRF CTRs and related IFP

Implementation of RNAV approach procedures for LIEA

Review of LIMP and LIPZ Initial Climb Procedures and SIDs

New SIDs: LIMZ

Reorganization of SIDs for LIRF and LICJ

New STAR and/or SID for LIMP, LIBP and LIPY

New IAC for LIBC

P-RNAV SIDs/STARs: LIPX, LIRF, LIMZ

New IFPs (STAR or SID or IAP or ICP): LIBC, LIPO, LIRZ, LIMP, LIRA, LIRF

Publication of an ad hoc AIC describing the implementation of Continuous Descent Operations

Implementations of P-RNAV SIDs/STARs: LIPZ, LIEO

Implementations of P-RNAV SIDs/STARs: LIPE, LIPX, LICJ, LIRQ

Implementations of New SIDs: LICA, LIMP
AIRPORT OPERATIONS

ENAV is leading, in cooperation with airport operators and airspace users, the deployment of A-CDM for the main Italian airports in order to improve the airport operations’ efficiency allowing to optimize the departure sequence and the taxi-times (-in and -out).

At the end of 2014 three Italian airports have implemented Full or Local A-CDM: Roma Fiumicino, Milano Malpensa and Venice. In a number of other airports a basic system for automatic data exchange managed by ENAV is available.

Air Traffic Controllers skilled in delivering efficient ground operations along with automation represent enabling factors for the reduction of apron and taxiway congestion while still guaranteeing the traffic flows and the airspace users’ needs. When estimating the 2014 performance both enabling factors have been taken into account and the recorded performance, estimated over the 3 airports where A-CDM has been implemented, also includes the improvements resulting from the specific training for ATCOs.

2014 Performance A-CDM Airports

| Δ min TTout | -73.500 |
| Δ T Fuel    | -1.205  |
| Δ T CO2     | -3.796  |
Plan 2015 - 2016

Implementation of A-CDM - Local and Full - with SW support for automatic data exchanging among ATC, AOP, Airlines, NMOC and related operational procedures for LIPZ, LIML, LIRN.

Extension of the automation of the Apron Management Service for LIEE, LIRA, LIPX

Achievements 2008 - 2014

Optimization and automation of the Apron Management Service of LIMC, LIML, LIME, LIMF, LIPE, LIPZ, LIRN and LICJ.

Extension of the automation of the Apron Management Service at LIEA, LIMJ, LIRQ, LIEO, LIBD, LICC and LICA.

Local implementation of A-CDM with SW support for automatic data exchanging among ATC, Airport Operators, Airlines, and related operational procedures for LIRF.

Full A-CDM (SW support for automatic data exchanging with NMOC): Fiumicino and Malpensa Airports evaluated results show a significant reduction of taxi-time.

Local A-CDM, Venezia Airport
One of the four cornerstones of the Flight Efficiency Plan is to raise Air Traffic Controllers’ awareness since they can give a mighty contribution for fuel savings both to in flight and on ground operations.

The principles of flight efficiency and their environmental implications were planned to be part of all the trainings and updating for ATCOs ever since ENAV’s first FEP in 2009. Currently they are included in both the training plans and report cards of ab-initio and advanced courses of the ATCOs’ students of ENAV Academy as well as in the ATCOs continuous training courses.

The positive achievements in the airports ground operation and in tactical behavior in every phase of flight are the main follow-up of this increasing in-depth training for operational personnel more deeply focused on efficiency.
Plan 2015

Ab initio and advanced ATCOs students will follow around 315 hours on flight efficiency.

ATCOs continuation training will include around 4,200 hours focused on flight efficiency.

Achievements 2009 - 2014

900 people - ab initio ATCOs, advanced ATCOs and FISO students - have attended modules on flight efficiency at ENAV’s Academy.

Managerial dedicated workshops for all ENAV’s ATS Units.

19,000 hours on flight efficiency provided to ATCOs during continuous training.