



Network Manager
nominated by
the European Commission



Flight Efficiency Initiative

Making savings through improved flight planning



FLIGHT EFFICIENCY

The Network Manager is playing a pivotal role in making sure that the European ATM system meets the performance targets set for it by the European Commission.

The first performance targets defined at the start of 2012 placed the onus on the air navigation service providers (ANSPs) to meet the new efficiency, capacity and environmental targets.

In the two years that have followed, the Network Manager has played an increasingly active role in the process. The first reference period sets three network-wide targets:

- average en-route delay (of 0.5 minutes per flight by 2014);
- improvement in flight efficiency (0.75% each year);
- an annual reduction in unit rates.

The Network Manager has taken ownership of the first two. In 2012, we met – and even superseded – the ambitious target of en-route ATFM delay of 0.7 min./flight by hitting 0.63 min./flight.

To tackle flight efficiency targets, we developed the En-Route Network Improvement Plan, which reflects those airspace design improvements planned to bring routes closer to the optimum “Great Circle” route and to reduce extended flight paths.

Over the past years, the ANSPs and the Network Manager delivered improvements in airspace managers, well above the targets, that should now be used by the aircraft operators.

However, routes remain on average 40 km longer than the “Great Circle”, according to the European Commission. This makes for extra fuel burn and emissions and has prompted EUROCONTROL to introduce a new initiative with the airlines in 2013: the Flight Efficiency Initiative.

FOR THE AIRLINES, WITH THE AIRLINES

Concretely, the objective of the Flight Efficiency Initiative is to offer aircraft operators the widest visibility on the potential of the network on the day of operations. Based on a thorough and dynamic knowledge of the route network capacity as well as having a wealth of information at our fingertips – like the latest weather updates, the current ATFCM situation (military activities, last-minute opening and closure of routes, ...), aircraft operators' up-to-date flight planning policies and operating procedures – the Network Manager can make the most dynamic use possible of the network. Being able to do this potentially makes for substantial fuel savings and also contributes to environmental gains.

The Flight Efficiency Initiative also underpins the strategic and continuous improvement of the airline operator's route catalogue. Thanks to operational improvements, the filing of flight plans is continuously improved.

The Initiative includes flight efficiency procedures and functionalities which are implemented as part of the Network Manager's operational systems that support the automatic processing of re-routing proposals for airspace users.

The Flight Efficiency Initiative is technically enabled by a **dynamic route generator** and an automatically maintained catalogue of past flown routes. The routes are evaluated according to subjective cost criteria provided by the airline operators, such as flying time costs, fuel costs and the cost of ATFCM delays.

Aircraft operators and the Network Manager worked closely together in the first phases of implementation and the results confirm the possibility of bringing positive environmental, operational and financial benefits.

IATA and IACA fully support the initiative. Together with the airspace user associations, the Network Manager will explore best ways of working with the computerised flight plan service providers (CFSPs) to ensure the best possible utilisation, from a flight efficiency perspective, of the European airspace network.

The actions planned by the Network Manager to improve flight efficiency will bring tangible benefits to airspace users and will help all our partners meet the European environment / flight efficiency target.

NM'S PROPOSALS FOR FLIGHT PLANNING IMPROVEMENTS

When translated into route extension, it could be found that **the flight efficiency reserve existing in the network would be enough for us to meet the European RP1 flight efficiency target by 2014.**

As a result, a number of actions are being deployed in the following three main areas to make for a rapid decrease of the route extension, as measured on the basis of the last filed flight plan:

1. in the strategic phase
2. in the strategic to pre-tactical/tactical phases
3. in the pre-tactical/tactical phases.



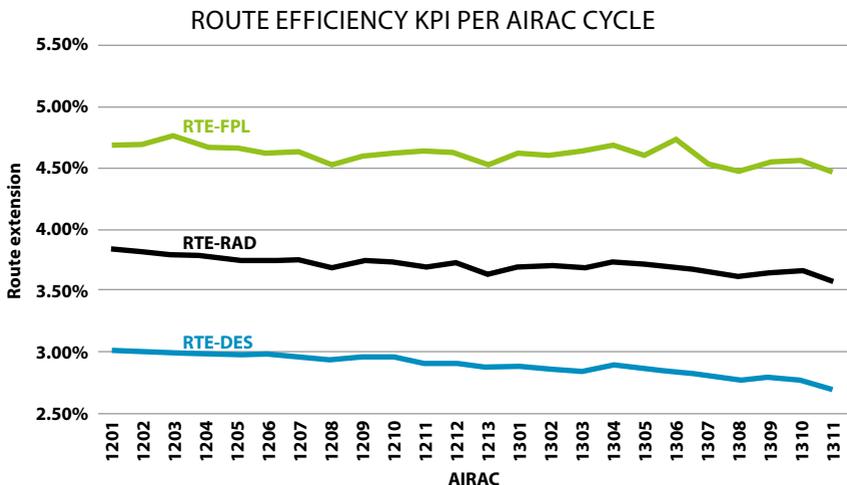
1. NM'S PROPOSALS FOR FLIGHT PLANNING IMPROVEMENTS in the strategic phase

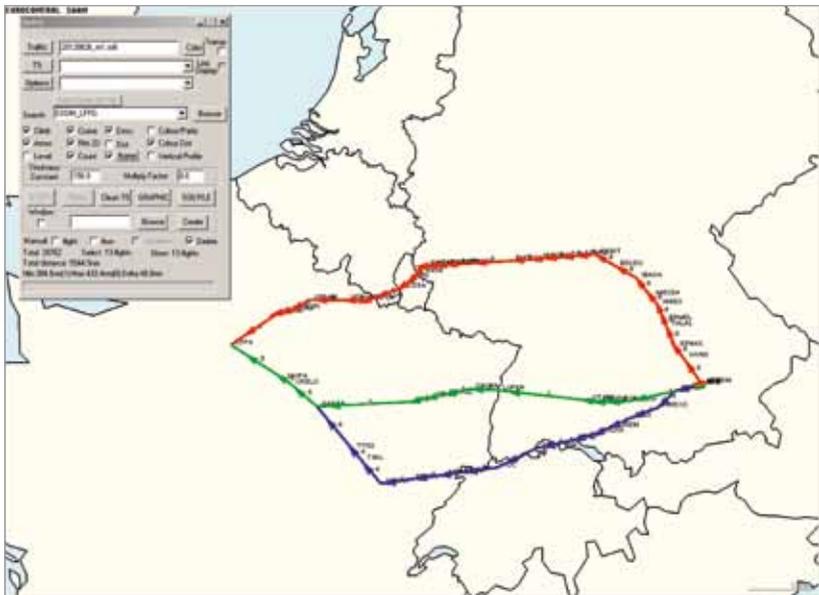
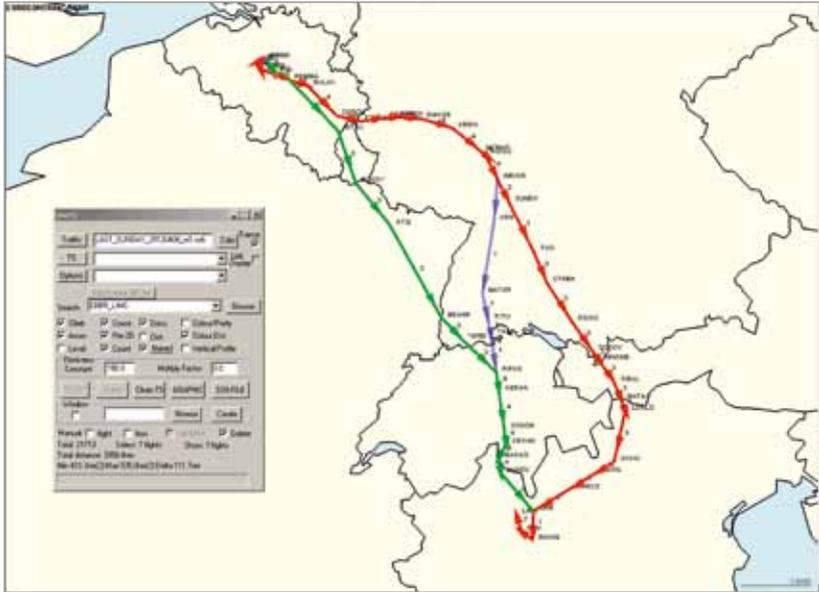
The latest network situation improvements in flight planning for various flows and city pairs can be identified.

An interactive tool – known as the DDR interface – allows all AOs (aircraft operators) and CFSPs to compare their flight plans with the best filed flight plan accepted by the Initial Flight Plan System (IFPS) in the last AIRAC (Aeronautical Information Regulation and Control) cycle for a given city pair. This tool displays flights between a busy city pair (without naming specific flights) and shows the number that have used the shortest route and those flying additional miles. It also gives users the possibility to detect newly implemented routes and conditional routes – CDRs – which are available at similar times, etc.

It is expected that airspace users and CFSPs will use the interface to improve their flight planning for the next AIRAC cycle. It can also be used to assess individual flight plans or to detect network performance developments.

The interface has been accessible since June 2013 via the DDR.





Flight Planning Support

2. NM'S PROPOSALS FOR FLIGHT PLANNING IMPROVEMENTS in the strategic to pre-tactical/tactical phases

Enhanced utilisation of CDRs through the deployment of ASM solutions

The European airspace network today can benefit from a significant level of dynamism through the application of the Flexible Use of Airspace (FUA) concept.

Conditional routes (CDRs) established in military areas are regularly made available on the day before operations (D-1) as well as on the day of operations. Most of these CDRs represent a shorter route length. Increased awareness of CDRs' availability helps operators to better exploit their flight planning options and so fly shorter routes, carry less fuel and reduce emissions.

- Assessment of traffic demand, ATFM measures, sector configurations and CDRs availability;
- Existence of CDR segments in the FPL;
- Route extension compared with the "best option"; flight extension mostly for en-route section (avoid extensive arrival/departure situations);
- Search for the flights with the shortest planned route for each city pair having at least one CDR in their planned route;
- For each city pair, assess the CDR availability requirements should all the flights on that city pair plan the shortest route;
- Proposals to AOs for better routes, including CDRs;
- Possible coordination with military partners, when required, for the coordinated availability of CDRs;
- This approach will be initially deployed in Summer 2013, targeting specific flows and areas.

3. NM'S PROPOSALS FOR FLIGHT PLANNING IMPROVEMENTS in the pre-tactical/tactical phases

- **Re-routing Proposals (RRP) provided by AOLOs (aircraft operator liaison officers)**
 - Currently implemented;
 - Rate of acceptance to improve as currently only 30% of the RRP's are followed;

- **Tactical RAD relaxations**
 - Based on existing Crisis Procedures;
 - Similar procedures could be implemented during normal operations as comparisons between actual trajectories and flight plans show that the RAD is not systematically followed during tactical operations;
 - Tactical relaxation of RAD could be also envisaged during the night or during periods of low demand.

- **ASM impact**
 - Enhanced assessment of the Airspace Use Plan (AUP) at D-1 and in the tactical phase with proposals made to AOs on the basis of available airspace;
 - Enhanced ASM impact assessments, including for military exercises.

■ **IFPS Actions**

- Integration of the flight efficiency component in IFPS;
- Treatment of the invalidated FPLs by seeking to improve the flown route length

■ **Route Opportunity Tool**

- Use of the Route Opportunity Tool to recompute flight plans post-IFPS filing, taking certain cost criteria elements given by AOs into consideration;
- Latest ATFCM situation and weather (wind) data part of the assessment;
- Flexible means of notification of possible flight plan changes.

■ **Repetitive Flight Plans (RPLs)**

- Proposals for RPL changes;
- Important that airlines maintain the suggested changes for each AIRAC cycle.

■ **Most Penalised City Pairs**

- Daily monitoring;
- Detect improvements based on the latest airspace design or airspace utilisation changes.

FOR MORE INFORMATION

contact nm.flightefficiencysupport@eurocontrol.int
and visit our webpages on www.eurocontrol.int

AWARENESS GOES WITH TRAINING

A wide range of training services and products is available in classroom format or through e-learning.

Flight Efficiency – Re-routing & Fuel costs

Aircraft operators face many challenges, including highly competitive and deregulated aviation markets, unstable fuel prices and environmental constraints. Both ANSPs and Aircraft Operators (AOs) have to improve the way they operate to ensure the sustainable growth of aviation while respecting the environment. Flight efficiency has a significant economic and environmental impact and so is a key component in the sustainable growth goal.

Airspace Organisation and Management

This course explains the current organisation and management of European airspace. Future plans and initiatives – both in the Single European Sky/SESAR framework and EUROCONTROL – are also covered. In addition, the course contains a number of presentations made by airspace users on their operations and particular airspace requirements.

FOR MORE INFORMATION

visit the EUROCONTROL Training Institute
webpages on www.eurocontrol.int/ians

BACKGROUND

the 2008 Flight Efficiency Plan

The Flight Efficiency – FE – concept dates back to April 2008 when the first key performance indicators referring to flight efficiency were adopted, on the recommendation of the Dynamic Management of the European Airspace Network (DMEAN) Steering Group.

In August 2008, IATA, CANSO and EUROCONTROL signed the Flight Efficiency Plan (FEP) in reaction to the fuel price crisis that summer. The FEP brought enhanced visibility to specific urgent developments to support flight efficiency and emission reduction.

The FEP contained five Action Points and these included enhancing European en-route airspace design and improving airspace utilisation and route network availability.

For the first time, the need for significant enhancements was recognised and priority given to:

- the availability of shorter routes;
- the development and testing of procedures to increase the use of available airspace through flight-planning conditional routes;
- the development of improved civil-military coordination procedures and supporting tools.

Airspace design, airspace management and ATFCM integrated into a single operational concept make for dynamic and flexible capacity and flight efficiency management executed at the strategic, pre-tactical and tactical levels.



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