

# Performance Planning Environment

Bernhard Mayr,  
CM Financial and Performance Committee,  
23 May 2014



# Agenda



- Report Performance Environment RP 1
- Environment KPI #1 RP 2
- FABEC Target RP 2
- FABEC Airspace projects RP 2



# RP1 - Environment: Overview FABEC

EU-wide KPI	FABEC KPI/PI
Average horizontal en-route flight efficiency (EC 691/2010)	KPI # 1: % of route extension represented in distance flown compared to great circle distance
	KPI # 2: Approach procedures in place supporting CDO operations (ICAO Doc 9931)
	PI # 1: % of route extension of intra FABEC flights represented by last filed flight plan compared to great circle distance



# Environment RP1 - EU-wide level

## Route extension



For RP 1, the EU-wide environment target is set by using the **percentage of direct route extension represented in distance flown compared to great circle distance** :

- a) all commercial IFR flights within European airspace
- b) where a flight departs or arrives outside the European airspace only that part inside the European airspace is considered
- c) En-route is defined as the distance flown outside a circle of 40 NM around the airport
- d) circular flights and flights with a great circle distance shorter than 80 NM between terminal areas are excluded
- e) PRB uses the **last filed flight plan vs great circle distance!**
- f) No mandatory national/FAB environment KPI for RP1



# Environment RP1 - EU-wide level

## Route extension



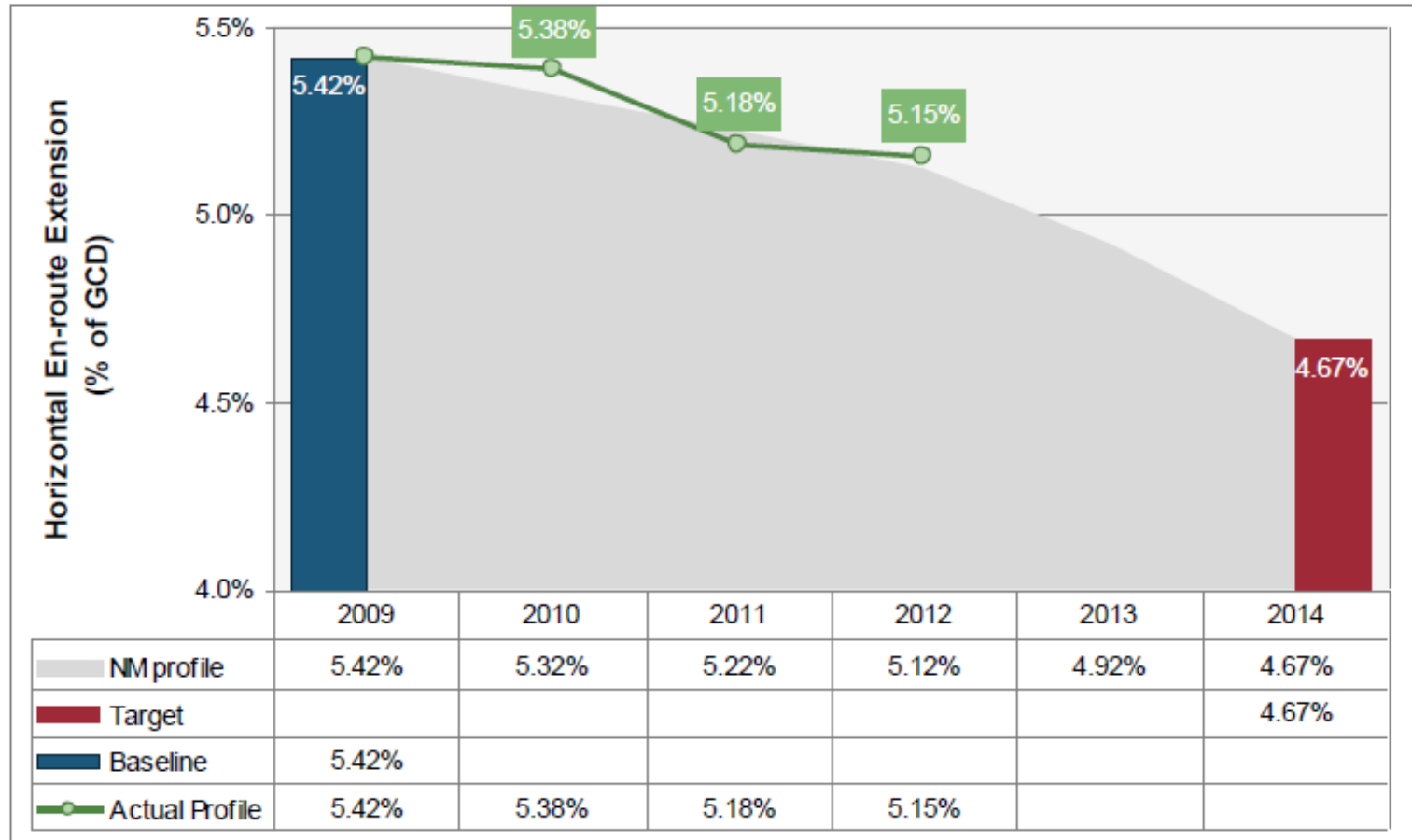
- **EU Target:**

**Improvement by 0.75 of a percentage point of the average horizontal en route flight efficiency indicator in 2014 as compared to the situation in 2009**



# Environment RP1 – EU wide level

## Route extension - Evolution



making the difference ...



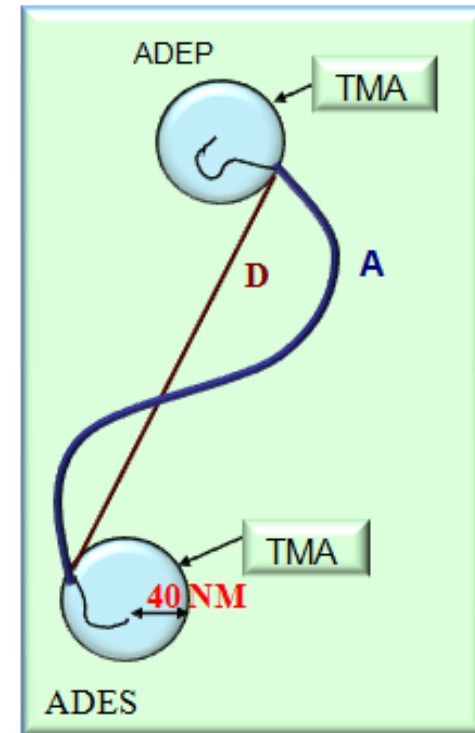
# Environment RP1 - FABEC level

## KPI # 1 Route extension actual tracks



“Percentage of route extension represented in distance flown compared to the great circle distance”:

- based on difference between the length of the en route part of the actual trajectory and the great circle distance
- based on **radar data**
- actual tracks flown are considered
- tactical improvements included
- mitigates some insufficient flight planning
- indicator can not fully be managed by FABEC ANSP
- reflects the current FABEC operational performance
- better picture on environmental and operational benefits



# Environment RP1 - FABEC level

## KPI # 1 Route extension actual tracks



- **FABEC Target:**

**Improvement by 5% of the average horizontal en route flight efficiency extension in 2014 as compared to the situation in 2011**



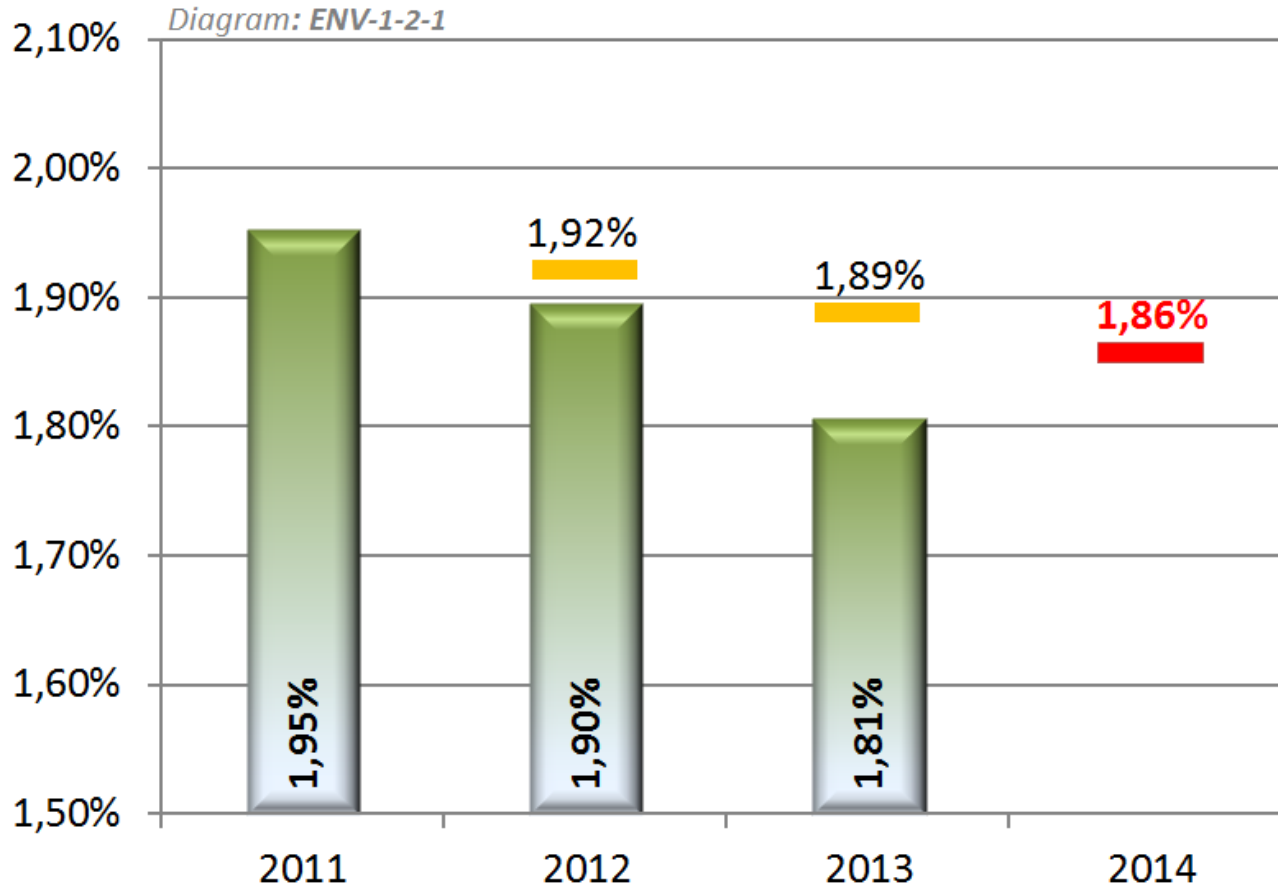


# Environment RP1 - FABEC level

## KPI # 1 Route extension actual tracks



■ Total Year ■ Target ■ Reference Value



**2011 Value:**  
**1,95 %**

**2014 Target:**  
**1,86 %**



# Environment RP1 - FABEC level

## KPI # 2 CDO



For RP 1, a FABEC target has been set by using the **share of FABEC airports that offer approach procedures in place supporting Continuous Descent Operations (CDO) in accordance with ICAO Doc. 9931:**

- a) share of relevant FABEC airports that offer Continuous Descent Operations
- b) to support the reduction of aircraft noise, fuel burn and emissions
- c) priority requirement of SESAR Master plan
- d) airports in FABEC region with more than 50.000 commercial movements
- e) airports CDO/CDA implementation status with EUROCONTROL tool
- f) taking into account interdependencies with capacity and safety



# Environment RP1 - FABEC level

## KPI # 2 CDO – April 2011



FABEC airports > 50.000 STATFOR movements in 2010						
No	COUNTRY	ICAO code	IATA_CODE	NAME	Total Traffic	CDA_IMPL_STATUS_ID
1	BELGIUM	EBBR	BRU	BRUSSELS NATIONAL	218836	Trial
2	GERMANY	EDDB	SXF	BERLIN/SCHOENEFELD	72467	not planned yet
3	GERMANY	EDDF	FRA	FRANKFURT MAIN	464313	Established
4	GERMANY	EDDH	HAM	HAMBURG/FUHLBUETTEL	148790	Committed (planned for 2011)
5	GERMANY	EDDK	CGN	KOELN-BONN	130997	Established
6	GERMANY	EDDL	DUS	DUESSELDORF	215069	not planned yet
7	GERMANY	EDDM	MUC	MUENCHEN	386911	Established
8	GERMANY	EDDN	NUE	NUERNBERG	60747	not planned yet
9	GERMANY	EDDP	LEJ	LEIPZIG/HALLE	61160	Established
10	GERMANY	EDDS	STR	STUTT GART	123300	not planned yet
11	GERMANY	EDDV	HAJ	HANNOVER LANGENHAGEN	67068	Established
12	NETHERLANDS	EHAM	AMS	AMSTERDAM/SCHIPHOL	396797	Established
13	LUXEMBOURG	ELLX	LUX	LUXEMBURG	53716	Committed
14	FRANCE	LFBD	BOD	BORDEAUX-MERIGNAC	53384	Committed
15	FRANCE	LFBO	TLS	TOULOUSE BLAGNAC	88238	Trial
16	FRANCE	LFLL	LYS	LYON SAIT EXUPERY	119672	Trial
17	FRANCE	LFML	MRS	MARSEILLE PROVENCE	103284	Established
18	FRANCE	LFMN	NCE	NICE COTE D'AZUR	129868	Committed
19	FRANCE	LFPG	CDG	PARIS CHARLES DE GAULLE	499866	Trial
20	FRANCE	LFPO	ORY	PARIS ORLY	219755	Established
21	FRANCE	LFSB	BSL	BALE-MULHOUSE	63706	Committed
22	SWITZERLAND	LSGG	GVA	GENEVE COINTRIN	164597	Established
23	SWITZERLAND	LSZH	ZRH	ZURICH	256811	Established

(minus "Paris/Le Bourget" (operational interdependencies with Orly and CDG); minus Berlin Tegel ( airport is closed soon)

2011 April						
No CDO	Committed	Trial	Established	Total	CDO Established	Share %
4	5	4	10	23	43	

making the difference ...



# Environment RP1 - FABEC level

## KPI # 2 CDO – April 2011



2011 April					
No CDO	Committed	Trial	Established	Total	CDO Established Share %
4	5	4	10	23	43

Target 2014		
Established	Total	Target Share %
21	23	90

### FABEC Target:

**90% e.i. 21 of the 23 relevant FABEC airports to offer approach procedures in place supporting Continuous Descent Operations (CDO) in accordance with ICAO Doc. 9931 at the end of 2014**



# Environment RP1 - FABEC level

## KPI # 2 CDO – March 2014



Country	Icao Code	IATA code	Name	CDO Implementation Status
Belgium	EBBR	BRU	BRUSSELS NATIONAL	Planned for June 2014
Germany	EDDB	SXF	BERLIN/SCHOENEFELD	Not planned before opening of new airport (BER replacing SXF)
Germany	EDDF	FRA	FRANKFURT MAIN	Established
Germany	EDDH	HAM	HAMBURG/FUHLBUETTEL	Planned in May 2014
Germany	EDDK	CGN	KOELN-BONN	Established
Germany	EDDL	DUS	DUESSELDORF	Planned by end 2014
Germany	EDDM	MUC	MUENCHEN	Established
Germany	EDDN	NUE	NUERNBERG	Planned in May 2014
Germany	EDDP	LEJ	LEIPZIG/HALLE	Established
Germany	EDDS	STR	STUTTGART	Planned by end 2014
Germany	EDDV	HAJ	HANNOVER LANGENHAGEN	Established
Netherlands	EHAM	AMS	AMSTERDAM/SCHIPHOL	Established
Luxembourg	ELLX	LUX	LUXEMBURG	Planned in 2014
France	LFBD	BOD	BORDEAUX-MERIGNAC	Established
France	LFBO	TLS	TOULOUSE BLAGNAC	Established
France	LFLL	LYS	LYON SAINT EXUPERY	Established
France	LFML	MRS	MARSEILLE PROVENCE	Established
France	LFMN	NCE	NICE COTE D'AZUR	Planned by end 2014
France	LFPG	CDG	PARIS CHARLES DE GAULLE	Established
France	LFPO	ORY	PARIS ORLY	Established
France	LFSB	BSL	BALE-MULHOUSE	Planned for end 2014
Switzerland	LSGG	GVA	GENEVE COINTRIN	Established
Switzerland	LSZH	ZRH	ZURICH	Established

2014 March				
No CDO during RP1	Planned for RP1	Established	Total	CDO Established Share %
1	8	14	23	61



# Environment RP1 - FABEC level

## PI # 1 Direct route extension intra FABEC



For RP 1, a FABEC indicator monitors the **percentage of route extension of intra FABEC flights (take-off and landing in FABEC AoR) represented by the last filed flight plan compared to great circle distance:**

- a) Intra-FABEC flights could be considered as a field for improvement
- b) Relatively weak performance data required attention
- c) Most 50 penalised city pairs already undergoing a optimisation process (e.g. Paris – Munich)



# Environment RP1 - FABEC level

## PI # 1 Direct route extension intra FABEC



Historical data from September 2009 to December 2010

### Last Flight Plan trajectory inside FABEC

	Flights	Direct distance (km)	FPL distance (km)	Extra-distance per flight	Efficiency indicator
Overflight	1 465 584	1 051 423 305	1 083 753 234	22,06	3,1 %
Dep or Arr	3 886 752	1 819 788 658	1 909 590 982	23,10	4,9 %
Dep & Arr	1 622 703	610 170 133	654 440 801	27,28	7,3 %
<b>TOTAL</b>	<b>6 975 039</b>	<b>3 481 382 096</b>	<b>3 647 785 017</b>	<b>23,86</b>	<b>4,78%</b>



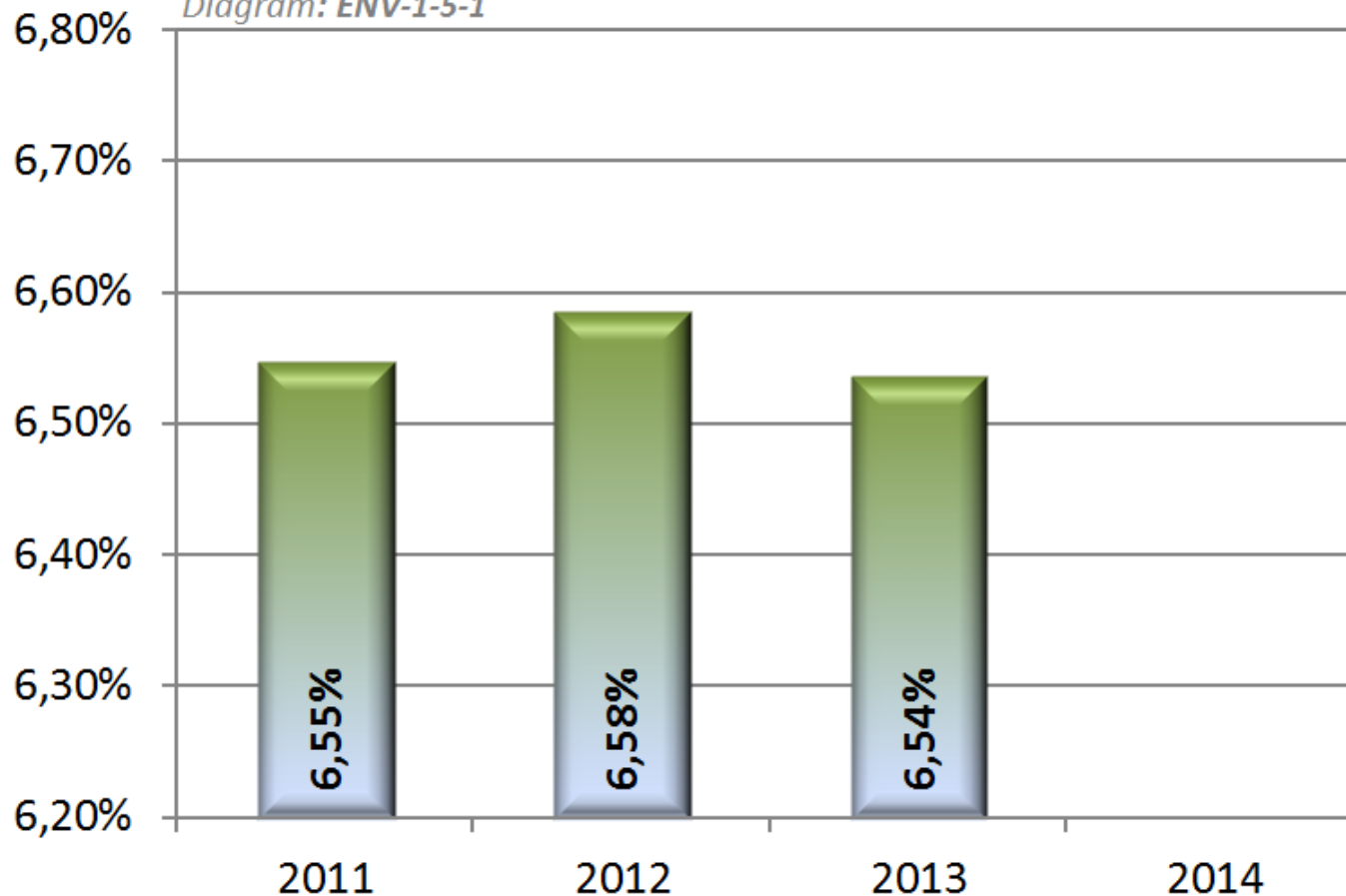
# Environment RP1 - FABEC level

## PI # 1 Direct route extension intra FABEC



■ Total Year

Diagram: ENV-1-5-1



making the difference ...





# Environment: Incentives



- ⇒ no financial incentives for RP1
- ⇒ Finance and Performance Committee entitled to trigger the ANSPs process to identify, as appropriate, corrective actions up to specific ANSPs and/or at FABEC level.



# Agenda



- Report Performance Environment RP 1
- Environment KPI #1 RP 2
- FABEC Target RP 2
- FABEC Airspace projects RP 2



# RP2 – Environment KPI Overview



KPA ENVIRONMENT	EU	FAB
KEA = The average horizontal <i>en route</i> flight efficiency of the <b>actual</b> trajectory	KEA KPI	KEA KPI
KEP = The average horizontal <i>en route</i> flight efficiency of the last filed <b>flight plan</b> trajectory,	KEP KPI	



# Environment RP2 - EU-wide level

## KEA - KPI



= **horizontal en route flight efficiency of the actual trajectory**, defined as follows :

- a) the indicator is the comparison between the length of the en route part of the **actual trajectory derived from surveillance data** and the corresponding **portion of the great circle distance**, summed over all IFR flights within or traversing the European airspace;
- b) 'en route' refers to the distance flown outside a circle of 40 NM around the airports;
- c) where a flight departs from or arrives at a place outside the European airspace, only the part inside European airspace is considered.



# Environment RP2 - EU-wide level

## KEP - KPI



= **Average horizontal en route flight efficiency of the last filed flight plan trajectory**, defined as follows :

- a) difference between length of en route part of the **last filed flight plan trajectory** and the corresponding **portion of the great circle distance**, summed over all IFR flights within or traversing the European airspace;
- b) 'en route' refers to the distance flown outside a circle of 40 NM around the airports;
- c) where a flight departs from or arrives at a place outside the European airspace, only the part inside European airspace is considered.



# Environment RP2 – FAB level

## KEA - KPI



The average horizontal en route flight efficiency of the **actual trajectory**, defined as follows:

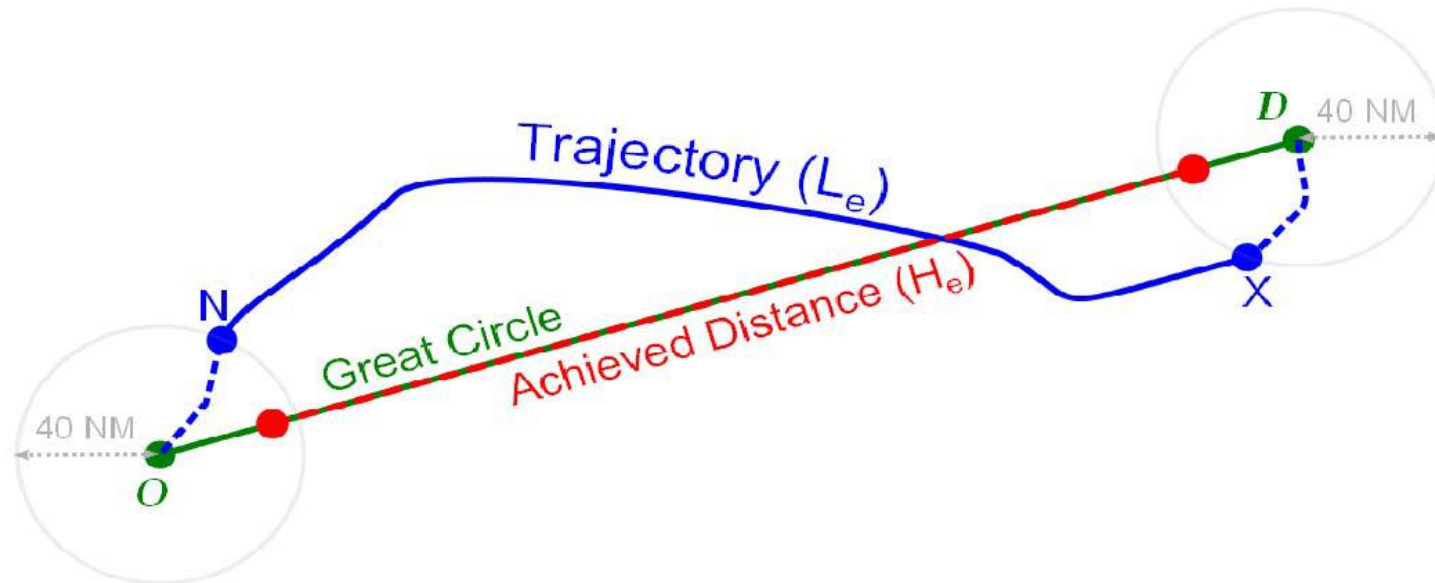
- a) the indicator is the comparison between the length of the en route part of the **actual trajectory derived from surveillance data** and **the achieved distance**, summed over all IFR flights within or traversing the local airspace;
- b) 'en route' refers to the distance flown outside a circle of 40NM around the airports;
- c) where a flight departs from or arrives at a place outside the local airspace, only the part inside the local airspace is considered;
- d) '**achieved distance**' is a function of the position of the entry and exit points of the flight into and out of the local airspace. Achieved distance represents the contribution that these points make to the distance used in the Union- wide indicator. The sum of these distances over all traversed local airspaces equals the distance used in the Union-wide indicator.

*For the purpose of this indicator, local means at FAB level.*



# Environment RP2

## Achieved distance\*



Achieved distances for a flight add up to great circle distance  
The achieved distance for the en-route portion of a flight corresponds to the achieved distance between “entry” and “exit” points located on the 40NM circles (for a flight within SES)

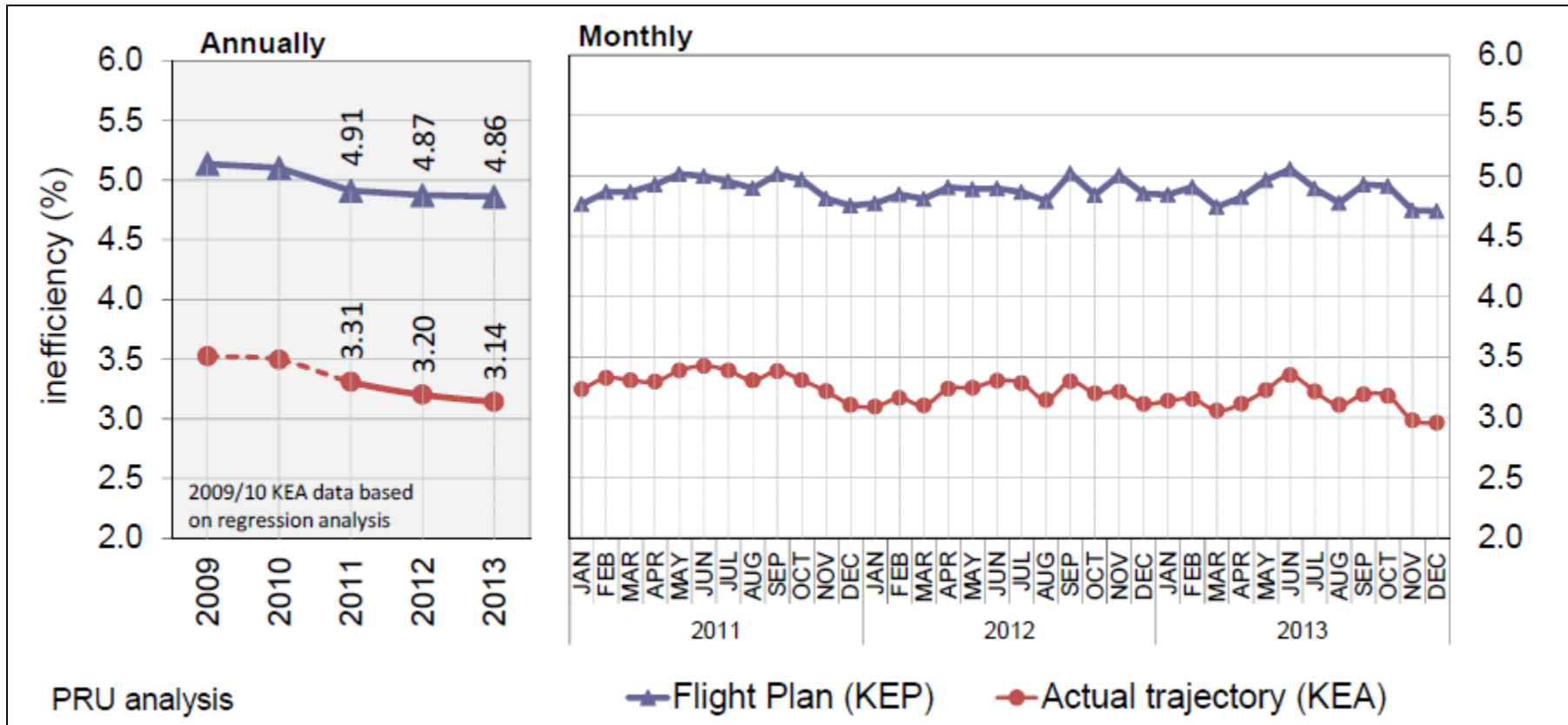
\*For a more extended description see:

[http://www.eurocontrol.int/prudata/dashboard/eur\\_view\\_2013.html](http://www.eurocontrol.int/prudata/dashboard/eur_view_2013.html)

making the difference ...



# Environment RP2 - EU-wide level KEP & KEA - evolutions



Comparison of annual values shows an improvement for the filed flight plan (KEP) and the actual trajectory (KEA) between 2009 and 2013.





# Environment RP2 - EU-wide level KEP & KEA - targets



- **EU-wide KEP & KEA targets for RP2:**

**For RP2, the Union-wide performance targets for the key performance area of environment are as follows:**

- 1. an average horizontal en route flight efficiency of at least 2,6 % in 2019 for the actual trajectory (KEA);**
- 2. an average horizontal en route flight efficiency of at least 4,1 % in 2019 for the last filed flight plan trajectory (KEP).**



# Agenda



- Report Performance Environment RP 1
- Environment KPI #1 RP 2
- **FABEC Target RP 2**
- FABEC Airspace projects RP 2



# Environment RP2 - FABEC level KEA - target



- **FABEC KEA target for RP2:**

**For RP2, the FABEC performance target for the key performance area of environment ...**



# Environment RP2 - FABEC level

## KEA - target



	2015	2016	2017	2018	2019
<b>EU wide target</b>	-	-	-	-	2.60 %
<b>FABEC reference value</b>	3.30 %	3.22 %	3.14 %	3.05 %	2.96 %
<b>FABEC target proposal (2019)</b>	3.30 %	3.22 %	3.14 %	3.05 %	<b>2.96 %</b>

KEA 2012: 3,56% KEA 2013: 3,50%

The reference values anticipate an improvement of more than 0.6 p.p. until 2019. This would be an improvement never seen before in the last decade in Europe and will be challenging to achieve in an airspace as dense and complex as FABEC.



# Agenda



- Report Performance Environment RP 1
- Environment KPI #1 RP 2
- FABEC Target RP 2
- FABEC Airspace projects RP 2



# Environment RP2 - FABEC level

## Airspace projects RP 2



FABEC undertakes several cross-border projects to improve en-route flight efficiency to provide a mutual benefit for airspace users:

1. FABEC Project South-East Phase 1-3,
2. FABEC Project Free Route Airspace,
3. FABEC Project Cross-border Arrival Management,
4. FABEC Project CBA Land Central West Phase 1 and 2,
5. FABEC Project Air Traffic Flow and Capacity Management / Air Space Management.



- END -

