ICAO State Action Plan

on aviation emission reduction

Action Plan of Montenegro

Imprint

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Dated: 25/07/2013

TABLE OF CONTEXT

ABBREVIATIONS

ACARE – Advisory Council for Aeronautics Research in Europe

ACI – Airport Council International

APA – AirPort control Area

AIRE – Atlantic Initiative for the Reduction of Emissions

AIS – Aeronautical Information Service

ASM – AirSpace Management

ATM – Air Traffic Management

CAA – Civil Aviation Agency of Montenegro

CAD – Civil Aviation Directorate of the Republic of Serbia

CAEP – Committee on Aviation Environmental Protection

CDM – Clean Development Mechanism

CDO – Continuous Descent Operation

CER – Emission Reduction Certificates

CNS – Communication, Navigation, Surveillance

DCT – Direct Flight

ECAA – European Common Aviation Area

ECAC – European Civil Aviation Conference

EPAM – Environment Protection Agency of Montenegro

EU ETS – European Union Emissions Trading System

FAA – Federal Aviation Administration

FAF – Final Approach Fix

FIR – Flight Information Region

FRA – Free Route Airspace

GHG – Greenhouse Gas

ICAO – International Civil Aviation Organization

IF – Intermediate approach Fix

MSDT– Ministry of Sustainable Development and Tourism

MTMA – Ministry of Transport and Maritime Affairs

PBN – Performance–based Navigation

P – RNAV – Precision Area Navigation

RTK – Revenue Tonne Kilometre

SESAR JU – Single European Sky ATM Research – Joint Undertaking

SMATSA – Serbia and Montenegro Air Traffic Services SMATSA llc

SWAFEA – Sustainable Ways for Alternative Fuels and Energy for Aviation

TCP – Transfer Control Point

TMA – TerMinal control Area

UNEP – United Nation Environmental Program

INTRODUCTION

a) Montenegro is a candidate country for European Union membership. Through the ECAA Agreement[1], Montenegro has accepted to align its national aviation legislation to the complete aviation acquis of the Community. To this end, Montenegro signed the ECAA Agreement in Jun 2006 which was ratified in October 2007. Montenegro is also member of the European Civil Aviation Conference (ECAC) since June 2008.

ECAC is an intergovernmental organisation covering the widest grouping of Member States[2] of any European organisation dealing with civil aviation. It is currently composed of 44 Member States, and was created in 1955.

b) ECAC States share the view that environmental concerns represent a potential constraint on the future development of the international aviation sector, and together they fully support ICAO's ongoing efforts to address the full range of these concerns, including the key strategic challenge posed by climate change, for the sustainable development of international air transport.

c) Montenegro, 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.

d) Montenegro recognises the value of each State preparing and submitting to ICAO a State Action Plan on emissions reductions, as an important step towards the achievement of the global collective goals agreed at the 37th Session of the ICAO Assembly in 2010.

e) In that context, it is the intention that all ECAC States submit to ICAO an Action Plan[3], regardless of whether or not the 1% *de mimimis* threshold is met, thus going beyond the agreement of ICAO Assembly Resolution A37-19. This is the Action Plan of the Montenegro.

f) Montenegro shares the view of all ECAC States that a comprehensive approach to reducing aviation emissions is necessary, and that this should include:

i. emission reductions at source, including European support to CAEP work.
ii. research and development on emission reductions technologies, including public-private partnerships.
iii. the development and deployment of low-carbon sustainable alternative fuels, including research and operational initiatives undertaken jointly with stakeholders.
iv. the optimisation and improvement of Air Traffic Management, and infrastructure use within Europe, in particular through the Single European Sky ATM Research (SESAR), and also beyond European borders, through the Atlantic Initiative for the Reduction of Emissions (AIRE) in cooperation with the US FAA.
v. Market-based measures, such as open emission trading schemes (ETS), which allow the sector to continue to grow in a sustainable and efficient manner, recognising that the measures at (i) to (iv) above cannot, even in aggregate, deliver in time the emissions reductions necessary to meet the global goals. This growth becomes possible through the purchase under an ETS of CO2 allowances from other sectors of the economy, where abatement costs are lower than within the aviation sector.

[1].

[1] [1] ECAA (European Common Aviation Area) is a project initiated and managed by the European Commission, aiming at the establishment of equal conditions of competition and common rules in aviation, including ATM and environment.

[2] Albania, Armenia, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Turkey, Ukraine, and the United Kingdom

[3] ICAO Assembly Resolution A37-19 also encourages States to submit an annual reporting on international aviation CO_2 emissions. This is considered by Europe an important task, but one which is different in nature and purpose to the Action Plans, which are strategic in their nature. For that reason, the reporting to ICAO on international aviation CO_2 emissions referred to at paragraph 9 of ICAO Resolution A37-19 is not part of this Action Plan. This information will be provided to ICAO separately.

g) In Europe, many of the actions which are undertaken within the framework of this comprehensive approach are in practice taken at a supra-national level, most of them led by the EU. They are reported in Section 1 of this Action Plan, where Montenegro's involvement in them is described, as well as that of stakeholders.

h) In the Montenegro a number of actions are undertaken at the national level, including by stakeholders, in addition to those of a supra-national nature. These national actions are reported in Section 2 of this Plan.

i) In relation to actions which are taken at a supra-national level, it is important to note that:

i. The extent of participation will vary from one State and another, reflecting the priorities and circumstances of each State (economic situation, size of its aviation market, historical and institutional context, such as EU/non EU). The ECAC States are thus involved to different degrees and on different timelines in the delivery of these common actions. When an additional State joins a collective action, including at a later stage, this broadens the effect of the measure, thus increasing the European contribution to meeting the global goals.

ii. Nonetheless, acting together, the ECAC States have undertaken to reduce the region's emissions through a comprehensive approach which uses each of the pillars of that approach. Some of the component measures, although implemented by some but not all of ECAC's 44 States, nonetheless yield emission reduction benefits across the whole of the region (thus for example research, ETS).

CURRENT STATE OF AVIATION IN MONTENEGRO

1.HISTORICAL BACKGROUND

The Kingdom of Serbs, Croats and Slovenes, and Montenegro as a member State was one of ten signatories to the "International Convention for Regulating Aeronautics", adopted in Paris, in October 1919. In the course of the period between the two World Wars, the civil aviation authority in the Montenegro operated as within the framework of a separate department under the Military Aviation Headquarters.

Following the Second World War, in 1946, the Office for Civil Aeronautics was established thus becoming a part of the Ministry of Transport in January 1947. Under a different name – the Federal Office for Civil Aviation – the aviation authority functioned independently until 1978, when it was incorporated into the Federal Ministry of Transport and divided into three departments:

- Air Transport Department,
- Federal Aviation Inspectorate,
- Federal Air Traffic Control Administration.

Following the establishment of the State Union of Serbia and Montenegro in 2003, a reorganisation of the aviation authority took place in view of its harmonisation with the international aviation standards and recommended practices and the European aviation requirements. The emphasis was on creating a competent and effective aviation authority which would regulate the area of civil aviation and preserve the safety and security of air services.

Basic characteristics of a modern aviation authority are the integration of state regulatory and supervisory functions into one specialized and financially independent authority as well as the disassociation of the air traffic service provider from the regulatory and supervisory authority.

The Governments of Serbia and Montenegro established the Civil Aviation Directorate of the State of Serbia and the State of Montenegro on 1 January 2004. Simultaneously, the Serbia and Montenegro Air Traffic Services Agency Ltd was founded for providing air navigation services.

Upon proclamation of independence of Montenegro, the Government of Montenegro, at its session held on August 24, 2006, passed the Decree ("Official Gazette of MNE, No 56/06") by which the Civil Aviation Administration has been established and its competence in civil aviation area has been prescribed.

The Civil Aviation Administration, as the State Administration Body, existed until the establishment of the Civil Aviation Agency.

The Government of Montenegro, on its session of July 2, 2009, passed the Decision on establishing the Civil Aviation Agency (Official Gazette of Montenegro 45/09) by which, on the basis of the Article 5 paragraph 1 of the Law on Air Transport (Official Gazette of Montenegro 66/08) the Civil Aviation Agency is established to perform the affairs of public interest from the civil aviation area.

2. NATIONAL STAKEHOLDERS

2.1. Civil Regulator(s)

2.1.1. General information

Civil aviation in the Montenegro falls under the responsibility of the Ministry of Transport and Maritime Affairs and Civil Aviation Agency of the Montenegro. The different national entities having regulatory responsibilities in ATM are summarised in the table below.

Activity in ATM:	Organisation responsible	Legal Basis
Rulemaking	Parliament, Government, Ministry of Transport and Maritime Affairs and Civil Aviation Agency	Law on Air Transport ("Official Gazette of Montenegro" No 30/12) and Transposed EU Regulations contained in the Official Gazette of Montenegro – International Contracts No. 1/2011 as of January 10 2011
Safety Oversight	CAA (inspection and audit)	Law on Air Transport ("Official Gazette of Montenegro" No 30/12), Bylaw on Certification and Safety Oversight of ANS Providers (Official Gazette of Montenegro, No. 17/2010 as of April 01 2010).
Establishment of Tolerable Safety Levels	Government Ministry of Transport and Maritime Affairs and Civil Aviation Agency	Law on Air Transport ("Official Gazette of Montenegro" No 30/12)
Safety Performance Monitoring	Ministry of Transport and Maritime Affairs and Civil Aviation Agency	Law on Air Transport ("Official Gazette of Montenegro" No 30/12)
Enforcement actions in case of non-compliance with safety regulatory requirements	Ministry of Transport and Maritime Affairs and Civil Aviation Agency	Law on Air Transport ("Official Gazette of Montenegro" No 30/12), Bylaw on Certification and Safety Oversight of ANS Providers (Official Gazette of Montenegro, No. 17/2010 as of April 01 2010). National Civil Aviation Safety Programe from 25.06.2012.
Airspace	Government, Ministry of Defense, Ministry of Transport and Maritime Affairs and Civil Aviation Agency	Law on Air Transport ("Official Gazette of Montenegro" No 30/12), Transposition of EU Regulation 2150/2005 contained in the Official Gazette of Montenegro – International Contracts No. 1/2011 as of January 10 2011
Economic	Ministry of Transport and Maritime Affairs and Civil Aviation Agency	Law on Air Transport ("Official Gazette of Montenegro" No 30/12)
Environment	Ministry of Sustainable Development and Tourism, Ministry of Transport and Maritime Affairs and Civil Aviation Agency	Law on Air Transport ("Official Gazette of Montenegro" No 30/12) Law on Nature protection ("Official Gazette of Montenegro" No. 51/2008) Law on Air Protection ("Official Gazette of Montenegro", No. 25/2010)Law on Environmental Noise Protection ("Official Gazette of Montenegro"28/2011 of 10 June 2011)Law on Environment ("Official Gazette of Montenegro", 48/08)
Security	Government, Ministry of Transport and Maritime Affairs and Civil Aviation Agency	Law on Air Transport ("Official Gazette of Montenegro" No 30/12) National Civil Aviation Security Programe from 03.06.2010., last amended on 02.06.2011. Regulative 185/2010; 300/2008; 272/2009 is implemented in NCASP National Civil Aviation Security Quality Control Programme, from 02.06.2011.

2.1.2. CIVIL AVIATION AGENCY

The Civil Aviation Agency is an independent legal entity which performs public authorities in accordance with the Law on Air Transport.

The Civil Aviation Agency is a National Supervisory Authority which performs the following activities: ensure compliance with charging principles for air navigation services, ANSP certification, oversight of air navigation services provision, oversight of air traffic management and oversight of air space management function and oversight of air traffic flow management function, as well as other activities in accordance with the Law on Air Transport.

Competences of the Agency are the following:

- certification of air operator and operating license;
- certification of aircraft type, of airworthiness of aircraft, of airworthiness inspection and of registration;
- certification on meeting the conditions by legal persons to maintain aircraft;
- certification of organisations for professional training of aeronautical personnel;
- certification of civil airports;
- certification of organisations for providing continuous airworthiness;
- licensing and ratings of civil aeronautical personnel;
- preparing the expert grounds for the development of programs, plans, secondary legislation, adopted by the Government and state administration body competent for the affairs of transport (hereinafter referred to as: the Ministry);
- adoption of general acts in accordance with this Law and acts for the implementation of ECAA Agreement, other concluded international agreements, international standards and recommended practices from civil aviation, and especially standards, procedures and recommended practices of ICAO, ECAC, EASA and EUROCONTROL with the consent of the Ministry;
- adopting acts to undertake urgent measures which specifically provide protection of air traffic safety;
- conducting Registries and records in accordance with this Law;
- performing professional supervision over the implementation of this Law and concluded international agreements;
- continous oversight on meeting the conditions in accordance with this Law;

The internal organization and operation and management of the Agency are regulated immediately by the establishment of the Agency in order to ensure a lawful, professional, efficient and cost-effective exercise of affairs and duties of public interest for Montenegro in the civil aviation area determined by the Law on Air Transport, concluded international agreements, EU regulations and the civil aviation safety and security rules and standards.

2.2. SMATSA LLC

Name of the ANSP:	**Serbia and Montenegro Air Traffic Services SMATSA llc**		
Governance:	Two State Enterprise	**Ownership:**	Gov. of; Serbia=92% Gov. of Montenegro=8%

Services provided	**Y/N**	**Comment**
ATC en-route	Y	
ATC approach	Y	
ATC Airport(s)	Y	
AIS	Y	
CNS	Y	
MET	Y	
ATCO training	Y	
Others	Y	Flight Check and Calibration Service for NAVAIDs/COM/PANS-OPS
Additional information:		
Provision of services in other State(s):	Y	Bosnia and Herzegovina, (within the eastern portion of the upper airspace of Sarajevo FIR).

2.3. Military Authorities

The Military Aviation Authority in Montenegro is the Ministry of Defence.

Military units don't have any particular role in ATS provision, but are involved in ASM planning processes and coordination, organisation and control of activities in TSAs. Military activities in Montenegro have no significant affect on the airspace users.

3. STRUCTURE OF THE AVIATION SECTOR

3.1. Air carriers with a Montenegrin AOC

AIR CARRIERS	**AOC**	**AUTHORIZATION**
Montenegro Airlines ME.AOC.001	20.07.2013.	Passenger and cargo transport
Di Air ME.AOC.002	30.01.2014.	Passenger transport

MONTENEGRO AIRCRAFT REGISTER 2011

Number in Register	*Registration Mark*	*Type Aircraft*	*Serial number*	*Manufacturer*	*Year of Man.*	*Engine type*	*Noise certificate basis*
0001	**4O – AOK**	Foker F28 MK 0100	11272	Fokker Aviation	1989	Rolls Royce Tay 620-15	EASA record no: **A3771**
0002	**4O – AOM**	Foker F28 MK 0100	11321	Fokker Aviation	1990	Rolls Royce Tay 620-15	EASA record no: **A3771**
0003	**4O – DNB**	PA38/112	38-78A-0743	Piper Aircraft Inc	1979	Lycoming O-235-l2C	EASA record no: **C883**
0004	**4O – BWW**	PA44/180T	44-8207014	Piper Aircraft Inc	1982	Lycoming TO/LTO-360-E1A6D	EASA record no: **C4485**
0005	**4O – BRO**	Cessna 421B	266	Cessna Aircraft Co.	1972	GTSIO-520-H-1B	
0006	**4O – BVA**	BEECHJET 400A	RK 124	Raytheon Aircraft Co.	1996	JT15D-5	EASA record no: **A5993**
0007	**4O – OAI**	GALAXY 8B	GLX-1018B	FireFly Ballons	1994	F1	N/A
0008	**4O – HEK**	AB-412 EP	25908	Agusta S.p.a	1998	PT6T-3D	EASA record no: **D182**
0009	**4O – AOT**	Foker F28 MK 0100	11350	Fokker Aviation	1991	Rolls Royce Tay 650-15	EASA record no: **A3771**
0010	**4O – AOA**	**ERJ 190 - 200 LR**	19000180	Embraer	2008	GE CF34-10EP	EASA record no: **A2797**
0011	**4O – BRS**	**Dromader PZL M18B**	1Z028-11	PZL Mielec	2002	Asz-62IR	N/A
0012	**4O – BRR**	**Dromader PZL M18B**	1Z028-04	PZL Mielec	2002	Asz-62IR	N/A
0013	**4O – HCC**	**AB-212**	5712	Agusta S.p.a	1979	PT6T-3	N/A
0017	**4O – AOP**	**Foker F28 MK 0100**	11332	Fokker Aviation	1990	Rolls Royce Tay 650-15	EASA record no: **A3771**
0019	**4O – HFB**	**Gazela SA 341**	5	Soko, Mostar	1975	Astazou III-B	N/A
0020	**4O – DOO**	PITTS S2B	5129	Christen Industries, Inc	1987	AEIO-540D4A5	N/A
0021	**4O – AOL**	Foker F28 MK 0100	11268	Fokker Aviation	1989	Rolls Royce Tay 620-15	EASA record no: **A3771**
0022	**4O – HAW**	AB-206	8314	Agusta S.p.a.	1972	Allison 250-C20B	N/A
0023	**4O – AOB**	ERJ 190 - 200 LR	19000283	Embraer	2009	GE CF34-10E5	EASA record no: **A2797**
0026	**4O – EAA**	AT-802 AMPHIBIAN	281	Ait Tractor Inc.	2008	PT6A-67AG	N/A
0027	**4O – EAB**	AT-802 AMPHIBIAN	294	Ait Tractor Inc.	2008	PT6A-67AG	N/A
0028	**4O – OOO**	Cessna 500	500-0392	Cessna Aircraft Co.	1979	PW&JT15D-1A	EASA record no: **A4898**
0030	**4O – DJR**	Utva 75	53232	Utva	1983	Lycoming IO-360-B1F	N/A
0031	**4O – BLA**	L 13A Blanik	266731	Let Kunovice Aircraft Industries	1977	N/A	N/A
0032	**4O – DGJ**	Utva 75	53174	Utva	1983	Lycoming IO-360-B1F	N/A
0033	**4O – DNC**	PA38/112	78A0138	Piper Aircraft Inc	1978	Lycoming O-235-l2C	EASA record no: **C883**
0034	**4O – DCC**	Citabria 7GCBC	291-70	Bellanca Aircraft corp.	1978	Lycoming O-320-A2B	N/A
0037	**4O – SEV**	LearJet 45	45-104	Learjet Inc.	2001	TFE731-20AR-1B	EASA record no: **A5**
0038	**4O – AOC**	ERJ 190 - 200 LR	19000358	Embraer	2010	GE CF34-10E6G07	EASA record no: **A2797**
0039	**4O – DHL**	Utva 75	53197	Utva	1982	Lycoming IO-360-B1F	N/A
0040	**4O – DNA**	Cessna F172N	1819	Reims Aviation S.A.	1979	Lycoming O-320-H2AD	EASA TCDSN Light props (Issue 9)
0041	**4O – DGA**	Utva 75	53168	Utva	1980	Lycoming IO-360-B1F	N/A
0042	**4O – DIY**	Blanik L23 Super Blanik	897507	Let Kunovice Aircraft Industries	1989	N/A	N/A
0043	**4O – GRD**	Lake LA-4-200 Buccaneer	499	Consolidated Aeronautics Ins.	1972	Lycoming IO-360-A1B	N/A
0044	**4O – MNE**	LearJet 45	45044	Learjet Inc.	2001	TFE731-20AR-1B	EASA record no: **A5**
0046	**4O – IOO**	PA42-720	42-5501029	Piper Aircraft Inc	1985	Pratt&Whitney PT6A-61	EASA record no: **C5695**

3.2. Airports in the Montenegro

Two international airports in the Montenegro, namely LYPG (TGD) Airport Podgorica “Golubovci”, LYTV (TIV) Airport Tivat “Tivat”, both owned by the Government of Montenegro.

There are three airfields in the Montenegro: Berane – "Lužac"; Nikšić – "Kapino polje"; Podgorica – "Ćemovsko polje", all owned by local municipality.
One heliport exist at the hotel Splendid in Budva for own use.

TRAFFIC PERFORMANCE

REVIEW OF THE HANDLING OF FOREIGN AIRCRAFT AP – Podgorica for 2012. (By month)

Aircarriers	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII pro c.	TOTAL
JAT	88	48	94	88	88	84	86	83	75	63	85	84	966
AUSTRIAN	21	14	24	31	31	30	30	31	30	30	22	22	316
ADRIA	12	8	13	13	16	12	13	14	12	14	11	11	149
CROATIA	9	7	12	13	11	12	13	13	12	14	12	12	140
TURKISH	14	8	14	18	18	19	22	23	21	21	18	19	215
MALEV	12	1	0	0	0	0	0	0	0	0	0	0	13
TOTAL REGULAR TRAFFIC	156	86	157	163	164	157	164	164	150	142	148	148	1799
FLY MONT.	1	0	0	2	1	41	32	38	38	6	1	0	160
KOLAVIA	0	0	0	0	0	5	4	4	5	0	0	0	18
HOL.CZECH	0	0	0	0	0	10	18	16	10	0	0	0	54
OTHER CHARTER	2	1	2	1	7	0	8	4	1	4	2	2	34
TOTAL CHARTERS	3	1	2	3	8	56	62	62	54	10	3	2	266
G.A. – commercial,	19	20	45	35	48	64	57	45	44	36	26	25	464
G.A. – noncommercial	1	12	3	2	7	3	5	1	0	0	1	2	37
UK.G.A.	20	32	48	37	55	67	62	46	44	36	27	27	501
UK.A+B+C	179	119	207	203	227	280	288	272	248	188	178	177	2566

Note: A review of domestic carriers are not covered:

MGX, DI AIR, SEVEN X, GOVERNMENT of MONTENEGRO

AIRPORT TIVAT number of rotations per company for 2012

Company	JANU	FEBR	MART	APRIL	MAJ	JUN	JUL	AVGU	SEPT	OKT	NOV	DEC	TOTAL
Regular traffic of local companies													
MONTENEGRO AIRLINES	53	55	67	99	116	169	203	203	141	91	70		1267
Other regular. traffic													
JAT	29	28	37	42	49	88	108	126	65	35	26		633
SIBERIJA			2	8	9	23	27	26	23	12			130
GLOBUS	9	7	7							1	13		37
MOSKOV	11	3	10	15	17	26	31	31	26	16	10		196

Summ	49	38	56	65	75	137	166	183	114	64	49		996
CHARTERS													
TRANS AERO				1	4	10	17	18	17				67
KOGALYMAVIA						4	4	5	3				16
NORD STAR				1	5	18	17	17	17	1			76
KUBAN				1	2	9	8	9	1				30
YAMAL	1			4	15	36	36	37	37	9	3		178
AERO FLOT					7	30	31	31	30	25			154
RED WINGS							3	5	6				14
TATARSTAN						4	1						5
URAL					4	24	24	27	21	1			101
ROSSIA					4	18	17	17	14	1			71
UKRAINA INT				1	4	17	20	20	16				78
WIND ROSSE				1	4	25	32	31	28	1			122
KHORS					4	21	25	20	20				90
ONIX AIR						2	3	3	3				11
THOMAS COOK				1	9	9	9	9	8	2			47
AIR BERLIN					3	4	4	5	4	2			22
SAS					2	8	8	4					22
JET TIME					2	1	1	1	2				7
Summ	1			10	69	240	260	259	227	42	3		1111
BUSINESS OPERATORS													
General. Aviation over 10t mtow	4	5	4	8	19	46	86	84	43	11	4		314
General. Aviation below 10t mtow	8	11	20	43	76	120	169	186	77	30	16		756
Summ	12	16	24	51	95	166	255	270	120	41	20		1070
Noncommercial	3	4	2	2	5	1	10	5	4	5	2		43
TTL	118	113	149	227	360	713	894	920	606	243	144	0	4487

4. INTERNATIONAL MEMBERSHIP

Montenegro is a member of the following international organisations:

Organisation	Since
ICAO	2007
ECAC	2008
EASA signed a Working arrangement	2009, 2012
EASA SAFA WA	2012
Eurocontrol	2007
European Common Aviation Area	2006 / ratification 2007

5. REGIONAL COORDINATION

5.1 Regional Coordination

ECAA (European Common Aviation Area) is an agreement initiated and managed by the European Commission, aiming at the establishment of equal conditions of competition and common rules in aviation, including ATM and environment. As for ATM, the project will seek the highest degree of cooperation with the view to extending SES among the States concerned.

Montenegro ratified the ECAA Agreement in November 2007.

In January 2011 the Government of Montenegro promulgated the Law amending the Law on Ratification of ECAA Agreement allowing a whole set of SES regulatory acts listed in Annex I of the Agreement to be transposed into national legislation and published in Montenegrin ("Official Gazette of Montenegro" No 1/11, January 10 2011). In June 2012 the Government of Montenegro promulgated new Aviation Act

that is fully compliant with the provisions of ECAA Agreement and it's Annex I ("Official Gazette of Montenegro – International Agreement" No 30/12.from June 8 2012).

Along the lines of SES, concrete and effective actions forward fulfilling operational requirements resulted in signing the agreements on operational-technical cooperation between SMATSA and other ANSPs in the region.

Agreements have been signed with NATA (Albania) and Slovenia Control (Slovenia) in 2010 and with HungaroControl (Hungary), BULATSA (Bulgaria) and MK CAA (FYROM) in 2011, as well as with ROMATSA (Romania) in 2012.

Agreements will consecutively contribute to airspace usage, increased capacity and ensure safe and efficient flow of air traffic with minimum delays.

SECTION 1

- Supra-national actions, including those led by the EU

1. AIRCRAFT RELATED TECHNOLOGY DEVELOPMENT

Aircraft emissions standards

European states fully support the ongoing work in ICAO's Committee on Aviation Environmental Protection (CAEP) to develop an aircraft CO2 standard. Assembly Resolution A37-19 requests the Council to develop a global CO2 standard for aircraft aiming for 2013. It is recognised that this is an ambitious timeframe for the development of a completely new ICAO standard. Europe is contributing to this task notably through the European Aviation Safety Agency providing the co-rapporteurship of the CO2 task group within CAEP's Working Group 3.

In the event that a standard, comprising certification requirement and regulatory level, is adopted in 2013, it is likely to have an applicability date set some years in the future. The contribution that such a standard will make towards the global aspirational goals will of course depend on the regulatory level that is set, but it seems unlikely that an aircraft CO2 standard could have any significant effect on the fuel efficiency of the global in-service fleet until well after 2020.

Research and development

Clean Sky is an EU Joint Technology Initiative (JTI) that aims to develop and mature breakthrough "clean technologies" for air transport. By accelerating their deployment, the JTI will contribute to Europe's strategic environmental and social priorities, and simultaneously promote competitiveness and sustainable economic growth.

Joint Technology Initiatives are specific large scale EU research projects created by the European Commission within the 7th Framework Programme (FP7) in order to allow the achievement of ambitious and complex research goals. Set up as a Public Private Partnership between the European Commission and the European aeronautical industry, Clean Sky will pull together the research and technology resources of the European Union in a coherent, 7-year, €1.6bn programme, and contribute significantly to the 'greening' of aviation.

The Clean Sky goal is to identify, develop and validate the key technologies necessary to achieve major steps towards the Advisory Council for Aeronautics Research in Europe (ACARE) environmental goals for 2020 when compared to 2000 levels:

• Fuel consumption and carbon dioxide (CO_2) emissions reduced by 50%;
• Nitrous oxides (NO_X) emissions reduced by 80%;
• Perceived external noise reduction of 50%;
• Improved environmental impact of the lifecycle of aircraft and related products.

Three complementary instruments are used by Clean Sky in meeting these goals:

Technologies

These are selected, developed and monitored in terms of maturity, or "technology readiness level" (TRL). A detailed list of more than one hundred key technologies has been set. The technologies developed by Clean Sky will cover all major segments of commercial aircraft.

Concept Aircraft

These are design studies dedicated to integrating technologies into a viable conceptual configuration, and assessing their potential and relevance. They cover a broad range of aircraft: business jets, regional and large commercial aircraft, as well as rotorcraft. They have been grouped and categorised in order to represent the major future aircraft families. Clean Sky's environmental results will be measured and reported upon principally by Concept Aircraft.

Demonstration Programmes

Some technologies can be assessed during their development phase, but many key technologies need to be validated at an integrated vehicle or system level via dedicated demonstrators. These demonstrators pull together several technologies at a larger "system" or aircraft level. Airframe, Engine and Systems technologies are monitored through in-flight or large scale ground demonstrations. The aim is to validate the feasibility of these technologies in relevant (in-flight or operating) conditions. Their performance can then be predicted in areas such as mechanical or in-flight behaviour. This in turn will help determine the true potential of the technologies and enable a realistic environmental assessment. Demonstrations enable technologies to reach a higher level of maturity (or TRL: technology readiness level), which is the "*raison d'être*" of Clean Sky.

The environmental objectives of the programme are determined by evaluating the performance of concept aircraft in the global air transport system (when compared to 2000 level technology and to a "business as usual" evolution of technology). The ranges of environmental improvements result from the sum of technologies which are expected to reach TRL5-6 within the programme timeframe. While not all of these technologies will be developed directly through the Clean Sky programme, it is neither feasible nor relevant at this stage to isolate the benefits derived purely from Clean Sky technologies, as Clean Sky will achieve a significant synergy effect in European Aeronautics Research by maturing closely linked technologies to a materially higher TRL through demonstration and integration.

Clean Sky activities are performed within six "Integrated Technology Demonstrators" (ITDs) and a "Technology Evaluator".

The three vehicle-based ITDs will develop, deliver and integrate technologies into concrete aircraft configurations. The two "transversal" ITDs are focused on propulsion and systems, and will deliver technologies, which will be integrated in various aircraft configurations by the vehicle ITDs. A further ITD will focus specifically on the life cycle assessment and 'eco-design' philosophy.

Smart Fixed Wing Aircraft (SFWA) – co-led by Airbus and SAAB – will deliver innovative wing technologies together with new aircraft configurations, covering large aircraft and business jets. Key enabling technologies from the transversal ITDs, for instance Contra Rotating Open Rotor, will be integrated into the demonstration programmes and concept aircraft.

Green Regional Aircraft (GRA) – co-led by Alenia and EADS CASA – will develop new technologies for the reduction of noise and emissions, in particular advanced low-weight & high performance structures, incorporation of all-electric systems, bleed-less engine architecture, low noise/high efficiency aerodynamics, and finally environmentally optimised mission and trajectory management.

Green Rotorcraft (GRC) – co-led by AgustaWestland and Eurocopter – will deliver innovative rotor blade technologies for reduction in rotor noise and power consumption, technologies for lower airframe drag, environmentally friendly flight paths, the integration of diesel engine technology, and advanced electrical systems for elimination of hydraulic fluids and for improved fuel consumption.

Sustainable and Green Engines (SAGE) – co-led by Rolls-Royce and Safran – will design and build five engine demonstrators to integrate technologies for low fuel consumption, whilst reducing noise levels and nitrous oxides. The 'Open Rotor' is the target of two demonstrators. The others address geared turbofan technology, low pressure stages of a three-shaft engine and a new turboshaft engine for helicopters.

Systems for Green Operations (SGO) – co-led by Liebherr and Thales – will focus on all electrical aircraft equipment and system architectures, thermal management, capabilities for environmentally-friendly trajectories and missions, and improved ground operations to give any aircraft the capability to fully exploit the benefits of the "Single European Sky".

Eco-Design – co-led by Dassault and Fraunhofer Gesellschaft – will support the ITDs with environmental impact analysis of the product life-cycle. Eco-Design will focus on environmentally-

friendly design and production, withdrawal, and recycling of aircraft, by optimal use of raw materials and energies, thus improving the environmental impact of the entire aircraft life-cycle.

Complementing these six ITDs, the Technology Evaluator (TE) is a dedicated evaluation platform cross-positioned within the Clean Sky project structure. The TE is co-led by DLR and Thales, and includes the major European aeronautical research organisations. It will assess the environmental impact of the technologies developed by the ITDs and integrated into the Concept Aircraft. By doing this, the TE will enable Clean Sky to measure and report the level of success in achieving the environmental objectives, and in contributing towards the ACARE environmental goals. Besides a mission level analysis (aircraft level), the positive impact of the Clean Sky technologies will be shown at a relevant hub airport environment and across the global air transport system.

The first assessment by the Technology Evaluator on the way to meeting Clean Sky's environmental objectives is planned for the end of 2011. The ranges of potential performance improvement (reduction in CO_2, NO_x and Noise) will be narrowed or evolved during the life of the programme based on the results from the key technologies developed and validated through the demonstrations performed.

Clean Sky is a 'living' programme: each year, Annual Implementation Plans are produced and agreed, and research priorities are (re-)calibrated based on results achieved. The best approach to progressing the technologies is pursued. The Clean Sky JU uses regular Calls for Proposals to engage with the wider aeronautical industry, research organisations and universities in order to bring the best talent on board and enable broad collaborative participation. A very significant share of the Clean Sky research programme is already being taken on by Europe's aerospace related SMEs, and by September 2011 nine Calls for Proposals will have been completed, demonstrating the JU's commitment to involving all competent organisations in the European aeronautics research arena. In June 2011, a major and exciting milestone was reached with the 400th partner joining the Clean Sky programme.

2. ALTERNATIVE FUELS

European Advanced Biofuels Flightpath

In February 2009, the European Commission's Directorate General for Energy and Transport initiated the SWAFEA (Sustainable Ways for Alternative Fuels and Energy for Aviation) study to investigate the feasibility and the impact of the use of alternative fuels in aviation. The goal was to provide the European Commission with information and decision elements to support its future air transport policy, in the framework of the European commitment to promote renewable energy for the mitigation of climate change, security of supply and also to contribute to Europe's competitiveness and economic growth.

The study team involved 20 European and international organisations, representing all players in alternative aviation fuels: aircraft and engine manufacturing, air transport, oil industry, research and consulting organisations covering a large spectrum of expertise in the fields of fuel, combustion, environment as well as agriculture.

The SWAFEA final report was published in July 2011[4] It provides a comprehensive analysis on the prospects for alternative fuels in aviation, including an integrated analysis of technical feasibility, environmental sustainability (based on the sustainability criteria of the EU Directive on renewable energy[5]) and economic aspects. It includes a number of recommendations on the steps that should be taken to promote the take-up of sustainable biofuels for aviation in Europe.

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4 http://www.swafea.eu/LinkClick.aspx?fileticket=llISmYPFNxY%3D&tabid=38

5 Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

In March 2011, the European Commission published a White Paper on transport[6]. In the context of an overall goal of achieving a reduction of at least 60% in greenhouse gas emissions from transport by 2050 with respect to 1990, the White Paper established a goal of low-carbon sustainable fuels in aviation reaching 40% by 2050.

As a first step towards delivering this goal, in June the European Commission, in close coordination with Airbus, leading European airlines (Lufthansa, Air France/KLM, & British Airways) and key European biofuel producers (Choren Industries, Neste Oil, Biomass Technology Group and UOP), launched the European Advanced Biofuels Flightpath. This industry-wide initiative aims to speed up the commercialisation of aviation biofuels in Europe, with the objective of achieving the commercialisation of sustainably produced paraffinic biofuels in the aviation sector by reaching a 2 million tons consumption by 2020.

This initiative is a shared and voluntary commitment by its members to support and promote the production, storage and distribution of sustainably produced drop-in biofuels for use in aviation. It also targets establishing appropriate financial mechanisms to support the construction of industrial "first of a kind" advanced biofuel production plants. The Biofuels Flight path is explained in a technical paper, which sets out in more detail the challenges and required actions[7].

More specifically, the initiative focuses on the following:

1. Facilitate the development of standards for drop-in biofuels and their certification for use in commercial aircraft;

2. Work together with the full supply chain to further develop worldwide accepted sustainability certification frameworks;

3. Agree on biofuel take-off arrangements over a defined period of time and at a reasonable cost;

4. Promote appropriate public and private actions to ensure the market uptake of paraffinic biofuels by the aviation sector;

5. Establish financing structures to facilitate the realisation of 2G biofuel projects;

6. Accelerate targeted research and innovation for advanced biofuel technologies, and especially algae.

7. Take concrete actions to inform the European citizen of the benefits of replacing kerosene by certified sustainable biofuels.

8. The following “Flight Path” provides an overview about the objectives, tasks, and milestones of the initiative.

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6 Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, COM(2011) 144 final

7 http://ec.europa.eu/energy/technology/initiatives/doc/20110622_biofuels_flight_path_technical_pap er.pdf

Time horizons	Action	Aim/Result
Short-term (next 0-3 years)	Announcement of action at International Paris Air Show	To mobilise all stakeholders including Member States.
	High level workshop with financial institutions to address funding mechanisms.	To agree on a "Biofuel in Aviation Fund".
	> 1,000 tons of Fisher-Tropsch biofuel become available.	Verification of Fisher-Tropsch product quality. Significant volumes of synthetic biofuel become available for flight testing.
	Production of aviation class biofuels in the hydrotreated vegetable oil (HVO) plants from sustainable feedstock	Regular testing and eventually few regular flights with HVO biofuels from sustainable feedstock.
	Secure public and private financial and legislative mechanisms for industrial second generation biofuel plants.	To provide the financial means for investing in first of a kind plants and to permit use of aviation biofuel at economically acceptable conditions.
	Biofuel purchase agreement signed between aviation sector and biofuel producers.	To ensure a market for aviation biofuel production and facilitate investment in industrial 2G plants.
	Start construction of the first series of 2G plants.	Plants are operational by 2015-16.
	Identification of refineries &blenders which will take part in the first phase of the action.	Mobilise fuel suppliers and logistics along the supply chain.
Mid-term (4-7 years)	2000 tons of algal oils are becoming available.	First quantities of algal oils are used to produce aviation fuels.
	Supply of 1.0 M tons of hydrotreated sustainable oils and 0.2 tons of synthetic aviation biofuels in the aviation market.	1.2 M tons of biofuels are blended with kerosene.
	Start construction of the second series of 2G plants including algal biofuels and pyrolytic oils from residues.	Operational by 2020.
Long-term (up to 2020)	Supply of an additional 0.8 M tons of aviation biofuels based on synthetic biofuels, pyrolytic oils and algal biofuels.	2.0 M tons of biofuels are blended with kerosene.
	Further supply of biofuels for aviation, biofuels are used in most EU airports.	Commercialisation of aviation biofuels is achieved.

3. IMPROVED AIR TRAFFIC MANAGEMENT AND INFRASTRUCTURE USE

The EU's Single European Sky initiative and SESAR

The EU's Single European Sky initiative was originally launched by the European Commission in 1999. Its fundamental aim is to reform the architecture of European air traffic control to meet future capacity and safety needs. Its main principles are to reduce fragmentation in European air traffic management, between states, between civil and military, and between systems; to introduce new technology; and to establish a new regulatory framework built on closer synergy between the EU and Eurocontrol.

The first package of EU Single European Sky legislation was adopted by the Council and European Parliament in 2004. This was followed in 2009 by the Single European Sky II package of measures, which comprises five main pillars: performance, safety, technology, airport capacity and the human factor. The aim is to improve the performance of air navigation services by reducing the cost of flights, while improving the capacity and better preserving the environment, all having regard to the overriding safety objectives.

Reducing fragmentation in European air traffic management is expected to result in significant efficiency and environmental improvements. A core starting point is the reduction of the current surplus length of flights in Europe, estimated on average to be almost 50 km. The defragmentation of European airspace with new possibilities for more direct routing, and efforts to define a true pan European network of routes and to implement flexible use of airspace are expected to result in emission reductions of 2% per year.

SESAR

SESAR (Single European Sky ATM Research) is the technological component of the Single European Sky (SES). It is a €2.1bn Joint Undertaking, funded equally by the EU, Eurocontrol and industry (€700m EU, €700m Eurocontrol, €700m industry). Fifteen companies are members of the SESAR JU: AENA, Airbus, Alenia Aeronautica, the DFS, the DSNA, ENAV, Frequentis, Honeywell, INDRA, NATMIG, NATS (En Route) Limited, NORACON, SEAC, SELEX Sistemi Integrati and Thales. The SESAR SJU includes an additional thirteen associate partners including non-European companies with different profiles and expertise.

SESAR aims to help create a "paradigm shift" by putting performance-based operations at the core of air traffic management's objectives, and will be supported by state-of-the-art and innovative technology capable of ensuring the safety, sustainability and fluidity of air transport worldwide over the next 30 years. It is composed of three phases:

• The Definition phase (2004–2008) delivered the ATM master plan defining the content, the development and deployment plans of the next generation of ATM systems. This definition phase was led by Eurocontrol, and co-funded by the European Commission under the Trans European Network-Transport programme and executed by a large consortium of all air transport stakeholders.

• The Development phase (2008–2013) will produce the required new generation of technological systems, components and operational procedures as defined in the SESAR ATM Master Plan and Work Programme.

• The Deployment phase (2014–2020) will see the large scale production and implementation of the new air traffic management infrastructure, composed of fully harmonised and interoperable components guaranteeing high performance air transport activities in Europe.

Implementation of SESAR in general will facilitate the following:

• Moving from airspace to trajectory based operations, so that each aircraft achieves its agreed route and time of arrival and air and ground systems share a common system view.

• Collaborative planning so that all parties involved in flight management from departure gate to arrival gate can strategically and tactically plan their business activities based on the performance the system will deliver.

• An information rich ATM environment where partners share information through system wide information management.

• A globally agreed 4D trajectory definition and exchange format at the core of the ATM system where time is the 4th dimension providing a synchronised "time" reference for all partners.

• Airspace users and aircraft fully integrated as essential constituents and nodes of the ATM system.

• Dynamic airspace management and integrated co-ordination between civil and military authorities optimising the available airspace.

• Network planning focused on the arrival time as opposed to today's departure based system with Airport airside and turn-around fully integrated into ATM.

• New Communication, Navigation & Surveillance (CNS) technologies providing for more accurate airborne navigation and spacing between aircraft to maximise airspace and airport efficiency, improve communication and surveillance.

• Central role for the human widely supported by automation and advanced tools ensuring safe working without undue pressure.

Within the SESAR programme most of the almost 300 projects include environmental aspects of aviation. They concern aircraft noise management and mitigation, aircraft fuel use and emissions management etc. throughout all of SESAR's 16 work packages. The Joint Undertaking's role is to establish environmental sustainability as an integral aspect of broader ATM development and operating processes.

SESAR aims at reducing the environmental impact per flight by 10% without compromising on safety but with clear capacity and cost efficiency targets in mind. More specifically, in addressing environmental issues, SESAR will:

1. Achieve emission improvements through the optimisation of air traffic management services. The SESAR target for 2020 is to enable 10% fuel savings per flight as a result of ATM improvements alone, leading to a 10% reduction of CO2 emissions per flight;

2. Improve the management of noise emissions and their impacts through better flight paths, or optimised climb and descent solutions;

3. Improve the role of ATM in enforcing local environmental rules by ensuring that flight operations fully comply with aircraft type restrictions, night movement bans, noise routes, noise quotas, etc.;

4. Improve the role of ATM in developing environmental rules by assessing the ecological impact of ATM constraints, and, following this assessment, adopting the best alternative solutions from a European sustainability perspective.

5. Accompany the development of new procedures and targets with an effective regulatory framework in close cooperation with the European Commission;

6. Implement more effective two-way community relations and communications capabilities at local and regional levels including a commonly agreed environmental strategy and vision.

By 2012 SESAR is expected to deliver fuel burn reductions of approximately 2% (compared with a baseline 2010), to demonstrate environmental benefits on city pairs connecting 8 European airports, and

to have airspace users signing up to the SESAR business case (including the environment case) for time-based operations.

Operational improvements: AIRE

The Atlantic Interoperability Initiative to Reduce Emissions (AIRE) is a programme designed to improve energy efficiency and lower engine emissions and aircraft noise in cooperation with the US FAA. The SESAR JU is responsible for its management from a European perspective.

Under this initiative ATM stakeholders work collaboratively to perform integrated flight trials and demonstrations validating solutions for the reduction of CO2 emissions for surface, terminal and oceanic operations to substantially accelerate the pace of change.

AIRE has demonstrated in 2009, with 1,152 trials performed, that significant savings can be achieved using existing technology. CO2 savings per flight ranged from 90kg to 1250kg and the accumulated savings during trials were equivalent to 400 tons of CO2. Another positive aspect is the human dimension – the AIRE projects boost crew and controller motivation to pioneer new ways of working together focusing on environmental aspects, and enabled cooperative decision-making towards a common goal.

The strategy is to produce constant step-based improvements, to be implemented by each partner in order to contribute to reaching the common objective. In 2010 demand for projects has more than doubled and a high transition rate from R&D to day-to-day operations, estimated at 80%, from AIRE 2009 projects was observed (expected to further increase with time). Everyone sees the “AIRE way of working together” as an absolute win-win to implement change before the implementation of more technology intensive ATM advancements expected for the period 2013 onward. A concrete example of the progress achieved is that, due to AIRE, both FAA and NAV Portugal offer lateral optimisation over the transatlantic routes to any user upon request. In July 2010, the SESAR JU launched a new call for tender and had an excellent response – 18 projects were selected involving 40 airlines, airport, air navigation service providers and industry partners. More than 5,000 trials are expected to take place.

4. ECONOMIC/MARKET-BASED MEASURES

The EU Emissions Trading System

The EU Emissions Trading System (EU ETS) is a cornerstone of the European Union's policy to combat climate change and its key tool for reducing industrial greenhouse gas emissions cost-effectively. Being the first and biggest international scheme for the trading of greenhouse gas emission allowances, the EU ETS currently covers some 11,000 power stations and industrial plants in 30 countries.

Launched in 2005, the EU ETS works on the "cap and trade" principle. This means there is a "cap", or limit, on the total amount of certain greenhouse gases that can be emitted by the factories, power plants and other installations in the system. Within this cap, companies receive emission allowances which they can sell to or buy from one another as needed. The limit on the total number of allowances available provides certainty that the environmental objective is achieved and ensures that the allowances have a market value.

At the end of each year each company must surrender enough allowances to cover all its emissions, otherwise heavy fines are imposed. If a company reduces its emissions, it can keep the spare allowances to cover its future needs or else sell them to another company that is short of allowances. The flexibility that trading brings ensures that emissions are cut where it costs least to do so. The number of allowances is reduced over time so that total emissions fall.

The EU ETS now operates in 30 countries (the 27 EU Member States plus Iceland, Liechtenstein and Norway). It currently covers CO2 emissions from installations such as power stations, combustion plants, oil refineries and iron and steel works, as well as factories making cement, glass, lime, bricks, ceramics, pulp, paper and board. Between them, the installations currently in the scheme account for almost half of the EU's CO2 emissions and 40% of its total greenhouse gas emissions.

The EU ETS will be further expanded to the petrochemicals, ammonia and aluminium industries and to additional gases (PFCs and N2O) in 2013, when the third trading period starts. At the same time a series of important changes to the way the EU ETS works will take effect in order to strengthen the system.

The legislation to include aviation in the EU ETS was adopted in November 2008, and entered into force as Directive 2008/101/EC of the European Parliament and of the Council on 2 February 2009. The proposal to include aviation in the EU ETS, made by the European Commission in December 2006, was accompanied by a detailed impact assessment.

Under the EU ETS, the emissions cap is increased to accommodate the inclusion of aviation. This addition to the cap establishes the total quantity of allowances to be allocated to aircraft operators. This quantity is defined as a percentage of historical aviation emissions, which is defined as the mean average of the annual emissions in the calendar years 2004, 2005 and 2006 from aircraft performing an aviation activity falling within the scope of the legislation. In July 2011, it was decided that the historical aviation emissions are set at 221,420,279 tonnes of CO2.

The additional cap to be added to the EU ETS in 2012, the first year of operation for aviation, will be set at 97% of the historical aviation emissions. For the period from 2013 to 2020 inclusive the additional cap will be set at 95% of the historical aviation emissions.

Aircraft operators flying to and from airports in 30 European states from 2012 will be required to surrender allowances in respect of their CO2 emissions on an annual basis. The large majority of allowances will be allocated to individual aircraft operators free of charge, based on their respective aviation output (rather than emissions) in 2010, thus rewarding operators that have already invested in cleaner aircraft. In 2012, 85% of the total quantity of the additional allowances (or “cap”) will be allocated free of charge according to this benchmarking methodology, while in the 2013–2020 trading period 82% of the additional allowances will be allocated free of charge in this way. In the 2013–2020 trading period, an additional 3% of the total additional allowances for aviation will be set aside for allocation free of charge via the special reserve, to new entrants and fast-growing airlines. The remaining 15% of allowances will be allocated each year by auction.

Aircraft operators that choose to emit more than their free allocation of allowances will be able to source allowances from other participants in the ETS (including those outside the aviation sector), from intermediaries who trade allowances, from Member States via auctions, or they can use specific quantities of international credits from emissions reduction projects in third countries (e.g. CDM credits and ERUs).

The system also includes a de minimis provision under which commercial aircraft operators with a low level of aviation activity in Europe are excluded from its scope. This is likely to mean that many aircraft operators from developing countries will be unaffected by the scheme and, indeed, over 90 ICAO states have no commercial aircraft operators included in the scope of the EU ETS.

The EU legislation foresees that, where a third country takes measures of its own to reduce the climate change impact of flights departing from its airports, the EU will consider options available in order to provide for optimal interaction between the EU scheme and that country’s measures. In such a case, flights arriving from the third country could be excluded from the scope of the EU scheme. The EU therefore encourages other countries to adopt measures of their own and is ready to engage in bilateral discussions with any country that has done so.

The legislation also makes it clear that if there is agreement on global measures, the EU shall consider whether amendments to this Directive as it applies to aircraft operators are necessary.

Anticipated change in fuel consumption and/or CO2 emissions

The environmental outcome of an emissions trading system is pre-determined through the setting of an emissions cap. In the case of the EU ETS, an addition to the overall cap is established for aviation emissions. However, aircraft operators are also able to use allowances allocated to other sectors to cover their emissions. It is therefore possible (indeed highly likely given traffic growth forecasts) that the absolute level of CO2 emissions from aviation will exceed the number of allowances allocated to aviation. However, any aviation emissions will necessarily be offset by CO2 emissions reductions elsewhere, either in other sectors within the EU that are subject to the EU ETS, or through emissions reduction projects in third countries. The "net" aviation emissions will however be the same as the number of allowances allocated to aviation under the EU ETS.

In terms of contribution towards the ICAO global goals, the states implementing the EU ETS will together deliver, in "net" terms, a 3% reduction below the 2005 level of aviation CO2 emissions in 2012, and a 5% reduction below the 2005 level of aviation CO2 emissions in the period 2013–2020.

Other emissions reduction measures taken, either at supra-national level in Europe or, by any of the 30 individual states implementing the EU ETS, will of course make their own contribution towards the ICAO global goals. Such measures are likely to moderate the anticipated growth in aviation emissions in Europe and therefore reduce the extent to which the absolute level of CO2 emissions from aviation will exceed the number of allowances allocated to aviation. However, assuming that absolute aviation emissions will nonetheless in future exceed the additional aviation cap, the aggregate contribution towards the global goals is likely to remain that which is determined by the EU ETS cap.

Expected co-benefits

The EU ETS covers both international and domestic aviation and does not distinguish between them. It is not therefore possible to identify how the "net" emissions reductions it delivers are apportioned between international and domestic aviation.

5. SUPPORT TO VOLUNTARY ACTIONS: ACI AIRPORT CARBON ACCREDITATION

Airport Carbon Accreditation is a certification programme for carbon management at airports, based on carbon mapping and management standard specifically designed for the airport industry. It was launched in 2009 by ACI EUROPE, the trade association for European airports.

This industry-driven initiative was officially endorsed by Eurocontrol and the European Civil Aviation Conference (ECAC). It is also officially supported by the United Nations Environmental Programme (UNEP). The programme is overseen by an independent Advisory Board. ACI EUROPE is looking at expanding the geographical scope of the programme through the other ACI regions. Discussions are currently under way with ACI Asia Pacific for a possible extension of the programme to the Asia Pacific region.

Airport Carbon Accreditation is a four-step programme, from carbon mapping to carbon neutrality. The four steps of certification are: Level 1 "Mapping", Level 2 "Reduction", Level 3 "Optimisation", and Level + "Carbon Neutrality". One of its essential requirements is the verification by external and independent auditors of the data provided by airports. Aggregated data are included in the Airport Carbon Accreditation Annual Report thus ensuring transparent and accurate carbon reporting. At level 2 of the programme and above (Reduction, Optimisation and Carbon Neutrality), airport operators are required to demonstrate CO2 reduction associated with the activities they control.

In June 2011, 2 years after the launch of the programme, 43 airports were accredited, representing 43% of European passenger traffic. ACI/Europe's objective for the end of the 3rd year of the programme's operation is to cover airports representing 50% of European passenger traffic. Programme's implementation is twofold: on top of recruiting new participants, individual airports should progress along the 4 levels of the programme.

Anticipated benefits:

The Administrator of the programme has been collecting CO2 data from participating airports over the past two years. This has allowed the absolute CO2 reduction from the participation in the programme to be quantified.

	2009-2010	2010-2011
Total aggregate scope 1 & 2 reduction (tCO_2)	51,657	54,565
Total aggregate scope 3 reduction (tCO_2)	359,733	675,124

Variable	Year 1		Year 2	
	Emissions	**Number of airports**	**Emissions**	**Number of airports**
Aggregate carbon footprint for 'year 0'[8] for emissions under airports' direct control (all airports)	803,050 tonnes CO_2	17	2,275,469 tonnes CO_2	43
Carbon footprint per passenger	2.6 kg CO_2		3.73 kgCO_2	

Variable	Year 1		Year 2	
	Emissions	**Number of airports**	**Emissions**	**Number of airports**
Aggregate reduction in emissions from sources under airports' direct control (Level 2 and above)[9]	51,657 tonnes CO_2	9	51,819 tonnes CO_2	19
Carbon footprint reduction per passenger	0.351 kg CO_2		0.11 kg CO_2	
Total carbon footprint for 'year 0' for emissions sources which an airport may guide or influence (level 3 and above)	2,397,622 tonnes CO	6	6,643,266 tonnes CO_2[10]	13
Aggregate reductions from emissions sources which an airport may guide or influence	359,733 tonnes CO_2		675,124 tonnes CO_2	
Total emissions offset (Level 3+)	13,129 tonnes CO_2	4	85,602 tonnes CO_2	8

Its main immediate environmental co-benefit is the improvement of local air quality.

Costs for design, development and implementation of Airport Carbon Accreditation have been borne by ACI EUROPE. Airport Carbon Accreditation is a non-for-profit initiative, with participation fees set at a level aimed at allowing for the recovery of the aforementioned costs.[4]

8 'Year 0' refers to the 12 month period for which an individual airport's carbon footprint refers to, which according to the Airport Carbon Accreditation requirements must have been within 12 months of the application date.

9 This figure includes increases in emissions at airports that have used a relative emissions benchmark in order to demonstrate a reduction.

The scope of Airport Carbon Accreditation, i.e. emissions that an airport operator can control, guide and influence, implies that aircraft emissions in the LTO cycle are also covered. Thus, airlines can benefit from the gains made by more efficient airport operations to see a decrease in their emissions during the LTO cycle. This is coherent with the objectives pursued with the inclusion of aviation in the EU ETS as of 1 January 2012 (Directive 2008/101/EC) and can support the efforts of airlines to reduce these emissions.

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SECTION 2

National actions in Montenegro

1. OVERVIEW

1.1. Objectives

National actions in the Montenegro specified in this Section aim at:

a) limiting CO_2 emissions from civil aviation activities starting with 2020;
b) informing the aircraft operators, ANSP and airport operators on new internationally promoted technologies;
c) encouraging involvement of national stakeholders in international and national projects aiming at reducing GHG emissions in civil aviation;
d) meeting the objectives of the aircraft operators by participating in the EU ETS scheme.

1.2. Type of actions to be taken

National actions in the Montenegro include:

a) Regulatory actions;
b) Operational actions;
c) Economic/market based actions;
d) ATM/infrastructure actions;
e) other actions.

1.3. Responsible National Institutions

The institutions responsible for implementing the actions specified in this Section are: CAA, MTMA, aircraft operators, SMATSA llc, MSDT, EPAM, airport operators.

1.4. Resources needed to implement the proposed actions

Depending on the actions laid down in this Section, the following open issues were identified:

a) Human resources – insufficient number of experts in the area with institutions responsible for implementation of the Action Plan;

a) Financial resources – financial resources necessary to implement the Action Plan.

2. REPORTING

2.1. All relevant stakeholders in the Montenegro (air carriers, airport operators, SMATSA llc, MSDT, etc.) should present annual reports to CAA, containing the description of the actions implemented in accordance with the Action Plan.
The above-mentioned reports should be submitted by 31 March of each year for the previous year (first report should be submitted until 31 March 2014, for activities performed in 2013).

2.2. The report shall contain a description of actions implemented/under implementation and an evaluation of their effects in terms of fuel efficiency and emission reduction.
The reports shall also contain the following global statistics related to air transport activity in the monitored calendar year.

2.3 CAA may request from appropriate institutions data on total CO2 emissions and aggregated data on different types of fuel used by Montenegrin air carriers. Submission and confidentiality of these data shall be the subject of the protocol between appropriate institutions.

2.4 Based on data received in accordance with 2.1. – 2.3, CAA shall develop the Annual report on actions for emissions reduction in civil aviation. The first report shall be prepared in 2014 for the actions taken in 2013.

3. UPDATE OF THE ACTION PLAN

The Action Plan is a dynamic instrument that will be updated regularly in order to facilitate decisions on policies and measures in civil aviation, so it can adapt to economic development of the Montenegro and established objectives for reducing emissions of greenhouse gases.

4. DESCRIPTION OF ACTIONS AT NATIONAL LEVEL IN THE MONTENEGRO

In order to maximize efficiency and ensure that all relevant stakeholders are involved, CAA initiated a stakeholder consultation process, and took the initiative of collecting information about emission reduction activities between different stakeholders. As a result, the stakeholders described the actions which they are already taking or will take, and those actions are presented in this Section.

4.1. Continuous promotion of practices and procedures at operational level with an impact on fuel consumption reduction

Description

Using best practices and procedures in ground operations to reduce fuel consumption:
• Use a Cost Index range to ensure compliance with the flight schedule and minimum fuel consumption;
• Loading the aircraft so that the position of the centre of gravity in flight is as backward as possible, thus ensuring a minimum fuel consumption;
• Transmission of flight schedules as close as possible to take-off time;

Using best practices and procedures during the flight:
• Use of optimal cruise level;
• Extending the studies regarding the impact of applying some CDA (Continuous Descent Approach) procedures at all airports with significant traffic volume;
• Minimum landing flaps, where possible;
• Take-off with FLEX method/Assumed Temp/Derate for the engines protection and as low consumption as possible on long-term;
• Accelerating at a more economical “Enroute climb” speed, under level 100 where possible.

Category

More efficient operations (Best practices in operations).

Start date

Air carriers have been applying this action for several years due to economic reasons (fuel consumption reduction).

Date of full implementation

In use.

Expected effects due to the implementation

At international level, according to the studies, it is expected that measures to improve the practices and procedures applicable in the field of flight operations can lead to a reduction in CO2 emissions by 2020 up to 3%.

Reference to existing legislation

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If a new legislation is proposed

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Resources needed for implementation

Training of the crew and of the aeronautical staff on the application of the best practices and procedures in the field of flight operations.

List of stakeholders involved

Air carriers, airport operators.

4.2. Establishment of reporting system for the EU Directive 2009/29/EC (EU ETS)

Description

Preparation of aircraft operators for implementation of the EU ETS Directive.

Category

Regulatory actions/Other (Conferences/workshops).

Start date

Year 2014

Date of full implementation

To be determined later.

Expected effects due to the implementation

Establishment of efficient reporting system for the EU Emission Trading Scheme.

Reference to existing legislation

/

If a new legislation is proposed

Under development.

Resources needed for implementation

/

List of stakeholders involved

MSDT, MTMA, EPAM CAA, aircraft operators.

4.3. Creation of a monitoring, reporting and verifying system for the successful implementation of the EU Emissions Trading Scheme

Description

EU ETS AND AVIATION ETS

In respect to the issue of climate change, Montenegro is working on international and domestic level in order to contribute to global combating of climate change. Montenegro's engagement on international level includes two equally important, mutually supportive courses of action, that is, adherence to relevant international multilateral environmental agreements and the EU accession process. EU accession process is regarded as a paramount national priority. Approximation of the *EU acquis,* including EU ETS, into national legislation represents a process whereby the national legal framework and overall political, social and economic reality are strongly and increasingly shaped, even more so after the official initiation of accession negotiations with the EU in June 2012. In its path towards full-fledged EU membership Montenegro has to adopt complete body of EU legislation. Important part of the EU legislation is the climate related legislation, inter alia, EU ETS and Aviation ETS legislation. In that respect, for activities other than aviation, Montenegro will not be officially part of the EU ETS until joining the EU. Accordingly, Montenegro will plan development of administrative, regulatory and institutional framework in the coming years in order to be ready for the challenge of the accession negotiations. First activities in terms of EU ETS legislation in Montenegro are planned for 2015 onwards. This timeframe will provide enough space to start preparing adequately for implementation and enforcement of this demanding legislation. On the other hand, national aircraft operator Montenegro Airlines is included in the Aviation EU ETS and *de facto* implements requirements laid down by the Directive 2008/101/EC on inclusion of aviation activities in scheme for greenhouse gas emission allowance trading within the Community. Montenegro Airlines is being regulated by the Germany as administering Member State. It has undergone all necessary accreditation procedures and established all necessary protocols and administrative structures for successful implementation of the Aviation ETS in Montenegro. Therefore Montenegro via its national aircraft operator Montenegro Airlines and its active participation in the Aviation EU ETS scheme is contributing to reducing greenhouse emissions and will continue to do so during next period up to and beyond 2020.

Preparation of the required legislation and institutional framework for efficient implementation of the EU ETS Directive, including necessary reporting to relevant institutions.

Category

Economic/market-based actions, Regulatory actions/Other (Requiring transparent carbon reporting).

Start date

System will be developed through the project and it will include, among other things, recommendations for beginning of implementation.

Date of full implementation

/

Expected effects due to the implementation

GHG emissions reduction, including that from aviation sector in a cost-effective and economically efficient manner.

Reference to existing legislation

/

If a new legislation is proposed

Under development.

Resources needed for implementation

Financial resources already provided by the EU.

List of stakeholders involved

MSDT, MTMA, EPAM CAA, aircraft operators.

4.4 Implementation of CDO landing procedures and development of PBN procedures

Description

CDO procedures have not been officially introduced in Montenegrin regulation yet, but the activities have been initiated. By means of the Local Single European Sky Implementation Plan (LSSIP) of the Montenegro, the full implementation of CDO is going to be considered for Podgorica and Tivat Airports. Implementation of the CDO for Podgorica and Tivat airports should be approached gradually, by establishing interim procedures during low traffic load periods and upon their evaluation.

The final decision on permanent introduction of CDO procedures in Podgorica and Tivat should be brought only after full evaluation of the effects of interim procedures, collected during the trial period.

In the meantime, before the procedure enters into force, in its operational work SMATSA suggests air traffic controllers to allow direct routes whenever the traffic situation permits so, thus contributing to the reduction of fuel consumption, and consequently CO_2 emissions. The following actions are being taken:

•All procedures (STAR) are designed on the principles of Continuous Descent Operations (CDO) and when the traffic situation allows, they are operationally implemented as CDO.

•Inbound aircraft are directed to IF with information about the distance to FAF, and are approved for descent with optimum vertical profiles until the altitude over FAF. In case of radar vectoring and in case of complex traffic situations, aircraft are kept at a certain altitude, and are informed about the distance to FAF and the position after which they will be able to continue optimal gradient descent.

•All activities related to airspace design, especially route network improvements, take into account the requirements of air carriers for the shortest and optimal routes, thereby leading to CO2 savings. Before making any decision in ASM, also includes the analysis on the amount of fuel savings achieved and CO_2 emissions reduction achieved.

•Whenever the traffic situation allows, outbound aircraft are suggested to take the shortest route to the TCP and often, with previous coordination with adjacent ATC unit, aircraft are approved direct routes to the TCP within adjacent FIR, significantly reducing the distance travelled, as well as CO2 emissions.Whenever the traffic situation allows, the outbound aircraft are approved for the requested flight level with optimal climb gradient and no speed limits.

PBN Plan for the Montenegro was developed and PBN STAR procedures are going to be considered as CDO, and thus giving a full contribution to CO_2 emissions reduction.

Category

Improved air traffic management and infrastructure use; More efficient operations.

Start date

2015.

Date of full implementation

Upon evaluation the effects of interim procedures, collected during the trial period.
2011.–2014.
2015.–2018.
2019.–2022.

Expected effects due to the implementation

CO_2 emission reduction

Reference to existing legislation

Roadmap for performance-based navigation implementation plan in Montenegro

If a new legislation is proposed

/

Resources needed for implementation

Training of ATC unit's staff for implementation of CDO procedures; communication with CAA, airport operator and air carriers.

List of stakeholders involved

SMATSA, CAA, Podgorica Airport and Tivat Airport, air carriers.

4.5 DCT options for planning and execution of flights

Description
Work on constant optimization of the route network led to the fact that the length of the most frequent routes within FIR Beograd were just 2% greater than its length at great circle.
Use of usual practices and procedures for improvement of flight efficiency by reducing the difference in the great circle distance and the flight plan distance from the airport of departure to the airport of arrival.

Category

Improved air traffic management and infrastructure use.

Start date

10.02.2012.

Date of full implementation

/

Expected effects due to the implementation

Maximum savings estimated for the level of traffic with the period of implementation of measure from 2200 to 0700 local time

Reference to existing legislation

Process is to be to promulgated by Regulation 255/2010 into legal framework of Montenegro during the course of 2013.

If a new legislation is proposed

/

Resources needed for implementation

/

List of stakeholders involved

Provider and users of air navigation services.

4.6 Free Route/ Free Route like concept

Description

Using best practices, procedures and experiences of the states that have adopted the Free Route concept. It allows the users of air navigation services to freely select the best flight planning options.

Category

Improved air traffic management and infrastructure use.

Start date

/

Date of full implementation

/

Expected effects due to the implementation

The main benefit of FRA is to reduce direct operating costs that result from a reduction in flight distances flown within FRA. FRA is also expected to bring the following qualitative benefits:

• Increased capacity;
• Greater flight planning flexibility for aircraft operators;
• Greater predictability of flight times;
• Increased air carrier efficiency.

Reference to existing legislation

Process is to be to promulgated by Regulation 255/2010 into legal framework of Montenegro during the course of 2013.

If a new legislation is proposed

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Resources needed for implementation

Training of service providers operational staff and additional training of users air traffic planners (dispatchers) on the flight planning rules.

List of stakeholders involved

Provider and users of air navigation services.

4.7 Improvement of aircraft fleet

Montenegro Airlines compliance with Aviation EU ETS regulation in the period 2013–2020.

Montenegro Airlines actions on improvement of aircraft fleet. By the end of 2015 Montenegro Airlines will improve its aircraft fleet by replacing two older aircrafts type Focker with more fuel efficient and technologically improved type Embrier. This will contribute to reducing fuel consumption during both flight and LTO operations and will have significant contribution in reducing CO_2 emissions and other environmental benefits attributed to new technologies.

Alternative Fuels
At the moment there are no measures taken by aerodromes, air traffic control or aviation industry to introduce alternative fuels.

CONCLUSION

The Montenegro is strongly dedicated to participate in all present and future international activities in the area of emission reductions which will be conducted by recognized international bodies.

ANNEX

- Fuel and lubricant consumption in airports and aviation in Montenegro
- Transport of cargo and passengers at airports in Montenegro
- CO_2 emissions from international and domestic civil aviation

Table 1 Fuel and lubricant consumption in airports and aviation in Montenegro

Fuel consumption by type of airport services in Montenegro		***Year***						
		2005	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***
1.	Diesel fuel in tonnes	49	69	81	94	83	61	84
2.	Petrol in tons	5	5	5	3	6	3	4
3.	Lubricants in tons	1	1	1	1	1	1	1

Consumption of fuel (kerosene) in air transport		Year						
		2005	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***
1.	Spent, tons	17 300	18 300	14 553	19 687	24 056	24 495	25 408

Source: Statistical Office of the Montenegro – MONSTAT

Table 2 Transport of cargo and passengers at airports in Montenegro

Transport of cargo and passengers at airports in Montenegro	Year						
	2005	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***
Passengers	697 740	833 715	1 024 491	1 109 095	956 405	1 205 536	1 258 835
Cargo in tons	1 011	1 067	1 320	1 490	1478	2 159	1 074

Source: Statistical Office of the Montenegro – MONSTAT

Table 3 CO_2 emissions from international and domestic civil aviation

	CO_2 (Gg)* from domestic aviation.	**CO_2 (Gg)* from international aviation**
2006	4,67	48,85
2007	3,42	67,21
2008	2,49	74,68
2009	1,24	70,01
2010	0,31	88,9
2011	0,93	79,04

Source: The Environmental protection Agency of Montenegro

*Gg – kilo tone (kt)

Note:
Assessment of emissions has been carried out in accordance with recognized IPCC methodology which, into total calculation of national CO2 emissions (as well as other greenhouse gas emissions) does not take emissions of international aviation. For that reason, the table below separately shows the international and domestic emissions. Official energy balances are used as a data source for 2006, 2007, 2008, 2009, 2010 and 2011.