COUNCIL OF THE EUROPEAN UNION

Brussels, 15 July 2013
(OR. en)

12347/13
ADD 2

RECH 353
COMPET 572
ENV 708
AVIATION 108

COVER NOTE

From:	Secretary-General of the European Commission, signed by Mr Jordi AYET PUIGARNAU, Director
date of receipt:	12 July 2013
To:	Mr Uwe CORSEPIUS, Secretary-General of the Council of the European Union
No. Cion doc.:	SWD(2013) 258 final
Subject:	Commission Staff Working document : Executive summary of the impact assessment : accompanying the document Proposal for a Council regulation on the Clean Sky 2 Joint Undertaking

Delegations will find attached document SWD(2013) 258 final.

Encl.: SWD(2013) 258 final

EUROPEAN
COMMISSION

Brussels, 10.7.2013
SWD(2013) 258 final

COMMISSION STAFF WORKING DOCUMENT

EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT

Accompanying the document

Proposal for a
COUNCIL REGULATION

on the Clean Sky 2 Joint Undertaking

{COM(2013) 505 final}
{SWD(2013) 257 final}

COMMISSION STAFF WORKING DOCUMENT

EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT

Accompanying the document

Proposal for a
COUNCIL REGULATION

on the Clean Sky 2 Joint Undertaking

This Executive Summary outlines the main findings and conclusions of the Impact Assessment report accompanying the Commission proposal for a Council Regulation defining the objectives, legal status and operational rules of the Clean Sky Joint Undertaking (Clean Sky JU) for the period 2014-2024.

The proposal follows the White Paper 'Roadmap to a Single European Transport Area — Towards a competitive and resource efficient transport system', which stresses that joint European efforts will bring the greatest European added value in areas such as clean, safe and silent vehicles for all different modes of transport, and the Commission Communication 'Partnering in Research and Innovation', which highlights that the partnering approach in public-private partnerships (PPPs) can help to address major societal challenges and strengthen Europe's competitive position.

The proposal is based on the Commission's proposal for 'Horizon 2020', which provides a legislative basis for future EU PPPs in research and innovation.

1. PROBLEM DEFINITION

1.1. The problem that requires action

1.1.1. Air transport has a significant environmental impact, which is increasing with air traffic growth

Air travel today accounts for about 7% of all emissions produced by the transport sector and around 2% of total CO_2 emissions in the world, but its share is increasing rapidly with the growth of air traffic. Flights in Europe will double between 2009 and 2030 and growth will be even stronger outside Europe.

With such a forecast, emissions will increase significantly if no mitigation measures are taken. It is urgent to drastically reduce the environmental impact of air transport if Europe is to meet its climate and energy targets.

1.1.2. EU industrial leadership is threatened by increasing international competition

The EU aeronautics sector is one of the world leaders in terms of production, employment and exports, generating annual turnover in excess of € 100 billion and employing about 500 000 people.

Despite this leadership, the EU aeronautical industry is increasingly confronted with strong traditional or emerging international competitors, which invest significantly in research and development programmes.

In order to maintain its competitiveness, the EU aeronautics industry should focus on developing innovative technologies with improved environmental performance and fuel efficiency and provide competitive and high-quality products.

1.1.3. Current EU Public-Private Partnership in aeronautics needs improvements

Since its establishment in 2008, the Clean Sky JU, a PPP between the European Commission and the aeronautics industry, is successfully stimulating developments towards the strategic environmental targets. In 2010, the first Interim Evaluation[1] concluded that the concept of the JU is appropriate for its objectives. It also identified a clear need for improved operational and legal framework. In addition, a Sherpas' group[2] recognised the need to streamline the legal framework to make it fit for the purpose of setting up and implementing PPPs in research in the future. They provided operational recommendations in order to improve the efficiency and its functioning as an instrument to manage the initiative.

1.2. The policy context

The Europe 2020 strategy sets out the EU's commitment to reduce all greenhouse gas emissions by 20% by 2020. The Transport White Paper recognises that transport accounts for a large share of these emissions and proposes reduction by 60% between 1990 and 2050. The Europe 2020 strategy also calls for an 'Innovation Union' to tackle the societal challenges and in particular promotes a more resource-efficient, greener and competitive economy. Horizon 2020 proposes the Smart, Green and Integrated Transport challenge aiming, among others, to secure both resource-efficient transport respecting the environment and global leadership for the European transport industry.

Recognising the evolving challenges, in 2011 a High Level Group on Aviation Research produced 'Flightpath 2050' — a new vision for the European aviation sector developed along the objectives of Europe 2020 and of the Transport White Paper in agreement between major public and private players in Europe. It addresses the environmental and competitiveness challenges and proposes ambitious goals for a sustainable and competitive aviation sector for 2050[3]. It is complemented by a new Strategic Research and Innovation Agenda of the Advisory Council for Aeronautics Research and Innovation in Europe (ACARE) and will guide future actions in public and private funding programmes along the common roadmap.

2. ANALYSIS OF SUBSIDIARITY

2.1. EU right to act

The EU is given the right to act in this field by Article 187 TFEU, which specifically allows setting up joint undertakings or any other structure necessary for the efficient execution of Union research, technological development and demonstration programmes.

---

1 http://ec.europa.eu/research/jti/pdf/clean_sky_interim_evaluation_15-12-2010.pdf

2 http://ec.europa.eu/research/jti/pdf/jti-sherpas-report-2010_en.pdf

3 e.g. a 75% reduction in CO_2 emissions per passenger kilometre, a 90% reduction in NOx emissions and a 65% reduction in perceived noise emission by 2050 relative to the 2000 baseline

2.2. The need for public intervention, subsidiarity and European added value

Improving the environmental performance of aeronautics technologies is complex and costly process requiring a long-term commitment of resources. Industry cannot address the technological challenge alone because of the costs and risks involved in R&D and because the social benefits of cleaner air travel cannot all be appropriated by the investing firms.

Also, the technological capabilities needed for innovative solutions in aeronautics are highly specialised, complementary and not homogenously distributed across all EU Member States. The scale and scope of the research agenda for greening of aircraft goes beyond the capacity of individual Member States in terms of both financial commitment and research capacity involved.

A large-scale programme with well-structured and focused research agenda agreed between public and private partners, bringing together different competencies and actors all over Europe, and with public and private financial involvement at EU level is able to stimulate the necessary technological advances and achieve large-scale societal, economic and environmental objectives.

2.3. Experience from previous programmes

Clean Sky has been successful in attracting extensive and wide-ranging participation by all key stakeholders, including a large number of SMEs. A total of 12 leaders, 74 associated member firms and more than 400 partner companies are working together to address the environmental objectives and to demonstrate and validate the required technological innovations in a commonly defined manner. The programme focuses on radical new technological concepts that would otherwise be beyond the manageable risk of the private sector and gives the necessary financial stability to invest in game-changing innovation in timeframes otherwise unachievable. It also has close links with the SESAR JU which develops Air Traffic Management technologies in line with the EU's 'Single European Sky' initiative. Despite this success, several points need to be better addressed in the future such as improvement of the openness of the activities, increase of the share of open calls and tailoring of the legal framework to support effective management and cost effectiveness.

3. OBJECTIVES

The initiative aims to improve the competitiveness and the environmental impact of the aeronautical technologies, in line with the objectives of Europe 2020, the Transport White Paper and the Horizon 2020 Smart, Green and Integrated Transport challenge.

The Clean Sky 2 Joint Undertaking shall have the following objectives:

1. To contribute to the finalisation of research activities initiated under Regulation (EC) No 71/2008 and to the implementation of Regulation (EU) No …/2013 of the European Parliament and of the Council of … 2013 establishing the Horizon 2020 Framework Programme, and in particular the Smart, Green and Integrated Transport Challenge under the Societal Challenges pillar... of Decision (EU) No …/2013/EU [of the Council of … 2013 establishing the Horizon 2020 Specific Programme];

2. To contribute to the objectives of the Joint Technology Initiative on Clean Sky 2 , in particular to integrate, demonstrate and validate technologies capable of:

(a) increasing aircraft fuel efficiency thus reducing CO2 emissions by 20 to 30 % compared to "state-of-the-art" aircraft entering into service as from 2014;

(b) reducing aircraft NOx and noise emissions by 20 to 30 % compared to "state-of-the-art" aircraft entering into service as from 2014[4].

4. POLICY OPTIONS

The Horizon 2020 programme will be implemented via collaborative research projects complemented by public-private partnerships.

The options considered are:

1. Business as usual (BAU). This option involves continuing the current Clean Sky initiative under Horizon 2020, extending the activities to achieve the objectives set. It relies on continuing the Clean Sky JU under Horizon 2020 as it currently exists, retaining its implementation arrangements.
2. Establishing a contractual PPP to implement a new programme (cPPP). The option aims to establish together with industry a common programme to achieve the objectives. The programme is implemented through a contractual PPP using collaborative research projects managed by Commission staff or an Executive Agency. The current Clean Sky programme under FP7 comes to an end in 2017 as initially programmed.
3. Establishing a new Joint Technology Initiative (JTI) through an improved JU to implement a new programme (CS2). This option establishes a new programme in the form of a JTI implemented by a JU. It aims to achieve the objectives set by addressing integrated technology demonstrations at large system level. The governance and programme structure aspects will be improved and modified to achieve further effectiveness and efficiency.

4.1. Discarded options

A 'No EU funding option' – discontinuation of public support for research and innovation in aeronautics at European level – was discarded because it contradicts the provisions of Horizon 2020 addressing air transport as a challenge.

A 'Regulatory option only' is not considered to allow ambitious objectives to be easily achieved in the aeronautics sector because there would need to be global agreement for its implementation and the performance targets would consequently be less ambitious.

The 'No public-private partnership' option was assessed as sub-optimal for pursuing the objectives set because carrying out a number of smaller projects instead of a large-scale integrated demonstrators programme could cause at least 10 years' delay in reaching final technology maturity compared to the other options. Such a delay would miss the opportunity to include the results in the next generation of aircraft before entry into service[5] and the impact would be small.

---

4 State-of-the-art aircraft is a new baseline introduced for future initiatives. Currently, Clean Sky results are compared to the year 2000 aircraft reference. The state-of-the-art aircraft (e.g. Airbus A320-NEO, Boeing 737-MAX, Boeing 787, Airbus A350) already incorporate a 15% reduction in CO_2 emissions compared to the Y2000 aircraft

5 Estimated in 2025-2030

5. COMPARING THE OPTIONS

5.1. How the options were compared

The assessment methodology is based on the impact of technologies introduced with the next generation of aircraft expected in the 2025-2030 timeframe[6]. Each option is assessed in respect of the emission reduction resulting from the technologies it is able to provide.

Three policy options identified were compared over a range of key impacts and criteria:

- Economic impact (jobs, SMEs, competitiveness)
- Environmental impact (emissions)
- Social impact (public health, societal benefits)
- Administrative impact (operating costs, simplified structure, governance efficiency)
- R&D impact (technology, demonstration, continuity, fragmentation, integration, timing, cost-effectiveness).

5.2. Comparison of options and assessment of cost-effectiveness

The assessment indicates that the CS2 option is the preferred option providing the best means to achieve the objectives. It has very good synergy with the current research programme and can be built on technologies and demonstrators developed under Clean Sky, ensuring a smooth transition.

The CS2 option has the highest potential to integrate and validate in good time the novel technologies at higher system level and thus is expected to significantly contribute to addressing the environmental and societal challenges. The BAU option would produce a lower impact because new technologies would begin to be developed later and further investment and intensive work on integration and maturation would be needed. For the cPPP option the necessary technological breakthrough would be more difficult and slower to achieve due to the implementation arrangements, the annual decisions on budget and content of the multiannual roadmap and the lower level of commitment from industry.

In terms of economic impact, the CS2 option is expected to generate larger benefits compared to other options. In addition, a cost-benefit analysis shows that CS2 implemented via the JU is at least cost-neutral or marginally beneficial over programme implementation under the Framework Programme by the Commission or Executive Agencies when the administrative costs are shared equally between public and private members.

The CS2 option is also preferred according to the results of the public consultation. It is supported by industry with a draft preliminary proposal for the continuation of the activities.

5.3. Comparison of impacts

The table summarises the comparison of the different options benchmarked against BAU.

[6] Because of the particularities of aircraft development, new technologies not included in the next generation will be introduced one generation later. The time between two generations is typically 10 to 15 years (subsequent generation around 2040-2045)

Criteria \ Option	Business as Usual (BAU)	Contractual PPP (cPPP)	Renewed JTI (CS2)
Effectiveness			
Critical mass	=	-	+
Impact on SMEs	=	-	=
Leverage effect	=	-	=
Innovation impact	=	=	+
Environmental impacts	=	=	+
Economic impact	=	=	+
Social impact	=	-	+
Efficiency			
Administrative costs	=	-	+
Administrative simplicity	=	=	+
Coherence			
Coherence with programmes of MSs	=	-	=

6. SCOPE OF CS2

The CS2 option will address the most promising new aircraft technologies capable of improving the environmental performance and competitiveness of the EU aeronautics industry and will build on technologies and demonstrators developed under Clean Sky.

Two complementary types of demonstrator activities are proposed for CS2:

- Three demonstrators (Innovative Aircraft Demonstrator Platforms) at the higher level of integration of full aircraft platforms. They will carry out final system testing in all flying segments (large and regional aircraft, rotorcraft) at the highest research level.
- Three transversal Integrated Technology Demonstrators focusing on airframe, engine and systems and including electrical taxing and sustainable lifecycle.

The Technology Evaluator will ensure continuous assessment of scientific and technological progress and their potential environmental impacts.

The programme will build on the successful features of Clean Sky such as the project-like character with a relatively small number of well-focused demonstrators and clearly set deadlines. Transition from Clean Sky to CS2 will be progressive and technical and managerial continuity will be ensured.

The current industry estimate of the cost of the programme is €4.05 billion. The EU will contribute with €1.8 billion from the Horizon 2020 budget. The industrial partners will contribute with €2.25 billion, €1 billion of which through additional activities.

7. MONITORING AND EVALUATION

Monitoring and evaluation of progress under the CS2 JU will be carried out by both external and internal bodies.

Internal progress monitoring will be carried out as follows: firstly, the JU Executive Team will monitor budget implementation and advances in the technical work; secondly, a technical review will be conducted by independent external experts on an annual basis; and thirdly, a Scientific and Technology Advisory Board will analyse the review results and provides assessment. Based on these assessments, an Annual Activity Report will be prepared, adopted by the Governing Board and published.

An evaluation by independent experts will be organised by the European Commission using well-defined technical, managerial and financial key performance indicators: evaluation before the programme starts *(ex-ante)*, interim assessments and evaluation after the programme is completed *(ex-post)*.

As for the current Clean Sky programme, the Technology Evaluator will be maintained as an important instrument for impact measurement and its role will be strengthened. It will allow a detailed assessment of the environmental benefits associated with the new technologies and will measure the impact of different technological advances against their specific targets.