

SAB Chairperson's Report to the Clean Aviation Governing Board on the Activities of the Scientific Advisory Body (SAB): January 2023—March 2023

Author: Trevor YOUNG (Chairperson, SAB)

Date: 4 July 2023

Scope

This report on activities of the Scientific Advisory Body (SAB) of the Clean Aviation Joint Undertaking (CAJU) has been prepared by the Chairperson of the SAB. The assistance of the CAJU is acknowledged: the CAJU provides administrative and secretariat support to the SAB to facilitate the execution of assigned tasks, in accordance with Article 21 of Council Regulation (EU) 2021/2085.

Formal meeting of the SAB

SAB meeting no. 01/2023 was held on 21 March 2023 (09.00–16.00) at the CAJU premises in Brussels in hybrid format (i.e. with remote participation). The minutes of the meeting, approved by the SAB on 4 July 2023, are attached (annex).

Key actions/events associated with SAB Meeting 01/2023

- The SAB had been tasked in 2022 to provide an opinion on the Second Call for Proposals under the Clean Aviation programme. As previously reported, the SAB reviewed in Q4/2022 draft texts of the “2-pager” call topic outlines, prepared by the CA Technical Committee (TC). Subsequently, the SAB received on 19 December 2022, for review, the *Second Amended Work Programme & Budget 2022-2023 and Topic Descriptions for Clean Aviation Call #2*. Following a detailed review of the document, the SAB prepared a formal response (opinion) on each of the Call texts and on the Amended Work Programme. The SAB met the CAJU via Microsoft Teams on 10 January 2023 to discuss their key findings. The SAB issued their final report on 13 January 2023, as agreed with the CAJU. The outcome of this consultation exercise was discussed at SAB meeting 01/2023.
- The SAB discussed at their meeting the upcoming Clean Aviation – Clean Hydrogen joint workshop (25-26 April 2023). It was agreed that Maria Argumosa would attend the workshop, as a representative of the SAB.
- The Clean Aviation High Five Awards, recognising five individuals who exemplify Clean Aviation’s commitment to climate-neutral aviation, was briefly discussed (an SAB member had agreed to act as a jury member for these awards).

- The schedule and expectations for the upcoming 2022 ARMs (Annual Review Meetings) for CS2 SPDs (Clean Sky 2 System & Platform Demonstrators) was discussed with the assigned SAB experts.
- The first round of CA Annual Reviews, set for September-October 2023, was discussed at the meeting. A preliminary assignment of SAB members who would act as experts for the project reviews was presented and briefly discussed.
- The next major consultation for the SAB was the review of the 2022 Annual Activity Report (AAR), starting on 12 April 2023. It was decided that those SAB members who participate as experts for the Annual Reviews of the CS2 SPDs would have the greatest responsibility in assessing the AAR.
- The high-level outcomes of the CS2 Technology Evaluator (TE) were reviewed at the meeting. It was noted that whereas most of the aircraft concepts met the objectives, difficulties in achieving low NO_x performance in cruise was identified, especially for the SMR+/++ concepts. A small SAB working group would be set up to provide an opinion on the subject.
- The Impact Monitoring process established by the CAJU for the CA programme was outlined at the meeting. The challenges of setting and measuring targets in CA, especially for non-CO₂ effects were briefly discussed. It was requested that the SAB establish a working group to provide an opinion on Impact Monitoring in CA, specifically regarding compliance to the Regulations.

Chairperson's notes

- The first quarter of 2023 marked the end of the first year of work for the SAB. During this time, good procedures for collaborative working have been developed by the group using Microsoft Teams. SAB members have also become more familiar with CAJU's expectations and the schedule of work.
- It was pleasing to observe that several SAB members remained in Brussels after the SAB meeting to attend the Clean Aviation Annual Forum (22-23 March 2023).
- The chairperson records the appointment of David Dunford to the SAB, following the resignation of Jan-Hendrik Boelens in Q4/2022.

Signed by,



Trevor Young

(Chairperson, SAB)

Annex

Minutes of Meeting no. SAB 01/2023



Scientific Advisory Body
of the Clean Aviation Joint Undertaking
Meeting no. 4
N° SAB 01/2023

21 March 2023
9.00 – 16.00
Av. de la Toison d'Or, 56 - B-1060 Brussels

Minutes of the Meeting

<i>Final Agenda</i>		
1.	<i>Welcome</i>	<i>9.00 – 09.10</i>
2.	<i>Adoption of the Agenda and Approval of previous MoM</i>	<i>9.10 – 09.15</i>
3.	<i>SAB consultation on Call 2.</i>	<i>9.15 – 10.00</i>
4.	<i>Estimated Timeline for 2023.</i>	<i>10.00 – 10.30</i>
5.	<i>CS2 and CA Annual Review Meetings</i>	<i>10.50 – 11.10</i>
6.	<i>CS2 Technology Evaluator – H2020/HE Evaluation</i>	<i>11.10 – 11.40</i>
7.	<i>Clean Aviation Impact Monitoring</i>	<i>13.00 – 15.50</i>
8.	<i>Next Meeting date.</i>	<i>15.50 – 16.00</i>
9.	<i>AOB</i>	

Attendees of Meeting N° SAB 01/2023 held 21 March 2023:

<i>Surname</i>	<i>Name</i>	<i>Attending</i>
SAB members		
Alonso	Gustavo	Yes
Argumosa	Maria Del Pilar	Yes
Burt	Graeme	Via Teams
Consigny	Hervé	Yes
De Gennaro	Michele	Yes
Dunford	David	Yes
Fernberg	Patrik	Yes
Henke	Rolf	Via Teams
Hornung	Mirko	via Teams
Isambert	Emmanuel	Via Teams
Joselzon	Alain	Via Teams
Malina	Robert	Yes
Pasteuning	Wim	Yes
Sanna-Randaccio	Francesca	Yes
Young	Trevor	Yes
Clean Aviation Joint Undertaking (CAJU)		
Krein	Axel	Yes
Van Manen	Ron	Yes
Dubois	Sébastien	Yes
Brouckaert	Jean-François	Yes
Harty	Niall	Yes
Selmin	Vittorio	Yes

Meeting chair: Trevor Young

1. Welcome

The Executive Director of Clean Aviation Axel Krein welcomed members to the first meeting of the SAB in 2023. He gave some brief introductory remarks highlighting the work the SAB had done so far for Clean Aviation. He then informed members of certain organisational changes to the JU's units' (departments) structure, with some units being divided up so that there would now be just four units going forward.

2. Adoption of the Agenda and Approval of the MoM for 11 October 2022

The Chair of the SAB asked members whether they had any comments or items to add to the agenda. There were no comments from members and the agenda was thus deemed adopted.

With regard to the minutes, there was a discussion as to how to record the minutes of unofficial meetings of SAB that took place between the previous meeting in October 2022 and the present meeting, 21 March 2023. Members agreed that these meetings would be mentioned in the Chair's board report and also noted under this section of the current minutes. The SAB met virtually with the Technical Committee (TC) on 14 and 24 November to discuss the topics for the second call for proposals. Following these TC meetings, the SAB met remotely with the JU on 19 December 2022 and 10 January 2023. Both meetings had a single topic agenda, which was the review of the Clean Aviation Second Amended Work Programme 2022-23 (including the Second Call for Proposals).

As there were no further comments regarding the minutes of the meeting held on 11 October, the draft minutes were deemed adopted. It was noted that they would be published on the website once signed by the Chair.

3. SAB consultation on the Second Call for Proposals (and Second Amended Work Programme)

The SAB discussed the process and outcome of the recent consultation exercise undertaken at the request of the JU.

The SAB was consulted on the topics for the second call for proposals and the Clean Aviation Work Programme 2022-23 over the period 19 December 2022 to 13 January 2023. They met with the JU via Teams on 19 December to discuss the preparation of their report and again on 10 January 2023 to review the draft report. The SAB issued their final report on 13 January 2023, as agreed with the JU. The report included a summary of the discussions held in the abovementioned meetings.

4. Estimated Timeline for 2023

The JU began by mentioning certain events that already took place in 2023, focussing on the AIAA SciTech Forum 2023, which took place in the United States from 23-27 January. The JU went on to remind members of the Clean Aviation Annual Forum that would be taking place in the two days following the present meeting on 22 and 23 March, to which the SAB had already been invited. It was noted that there would be a Governing Board (GB) meeting on the 22nd, just before the CA Forum, as well as two further GB meetings in 2023 planned for 7 September and 20 November. Clean Aviation "Call 2" info days were presently taking place across Europe during February and March.

The SAB was also invited to nominate one or two members to attend the Clean Aviation -- Clean Hydrogen joint workshop on 25-26 April. The SAB nominated Maria Argumosa to attend.

The SAB was also reminded that Clean Aviation would be present at the Paris Airshow, which was to take place from 19-26 June. The Clean Aviation High Five Awards process, recognising five individuals who exemplify Clean Aviation's commitment to climate-neutral aviation, was described. The results would be announced at the Paris Airshow. The JU then summarised a number of upcoming events related to Clean Aviation's work taking place throughout 2023.

The SAB were informed that members would be consulted on the Annual Activity Report 2022, starting on 12 April with a deadline for report submission of 26 April.

5. CS2 activities and CA Annual Review Meetings (ARM)

The JU stated that several CS2 GAMs would be extended to March 2024. It was noted that beneficiaries would be able to submit deliverables for another two months after that date. A final project report is expected to be submitted by each SPD in Q2/2024.

The JU gave a brief run through of the Clean Aviation programme's timeline through to the first quarter of 2025.

The JU explained that the first round of CA Annual Reviews was set for September-October 2023, focussing on TRA, SMR, HER and H2. The reviews would take place at the Clean Aviation's premises, White Atrium in Brussels, with the possibility to connect remotely also available. A preliminary assignment of SAB members who would act as experts for the project reviews was presented and briefly discussed. The discussion then progressed into the way forward and how the process of preparing the Clean Aviation ARMs would work.

6. CS2 Technology Evaluator – H2020/HE Evaluation

SAB members were given a recap of the Clean Sky 2 Technology Evaluator (TE) annual review meeting which took place on 12 and 13 October 2022.

The results were summarised as follows. Most of the a/c concepts achieved the objectives, whilst difficulties in achieving low NO_x performance in cruise was identified, especially for the SMR+/++ concepts. Priority was given to maximising CO₂ (fuel burn) reduction and to compliance with the regulation, the consequence being the non-conformity with the mission level objective. The performance of the TE2 concepts confirmed that the objective of Clean Aviation (-30% fuel burn at a/c level) should be achievable.

It was underlined that the SAB would be tasked with preparing a course of actions, as well as explanations for the final TE report. Initial results for the 2nd assessment report would be available by the end of the third quarter of 2023. The final version of the second assessment report would be made available by the end of the first quarter of 2024.

7. Clean Aviation Impact Monitoring

The JU opened a discussion with the SAB on impact monitoring. The JU first underscored the legal basis of impact monitoring in the Single Basic Act, pointing to articles 19, 66, 67 and 57. The JU also went through the timeline of when various impact monitoring assessments would be due. Impact monitoring of reference baseline, key performance indicators, targets and technological readiness levels would be due in M6. In November of each year, an annual impact monitoring report would be due. Every second year in November the report would be accompanied by a more detailed biennial model-based performance estimation. Finally, at the end of the project, there would be a concluding final impact monitoring report indicating the performance improvement achieved across the project as well as the maturity reached.

The SAB was then given an overview of the actions to be taken before the report in November 2023. The impact monitoring principles in common (JU and industry) was to be finalised by end of March 2023. The assessment criteria and metrics (non-CO₂ effects and GHG emissions) would need to be consolidated based on inputs from SAB, TC and POJU, this would then lead to the finalisation of the impact monitoring framework, with the performance

requirements definition and cooperation plan at project level ready to proceed by the end of June.

In this context, the SAB was asked to establish a Working Group (WG) that would be asked to provide an opinion on Impact Monitoring in CA, specifically regarding compliance to the Regulations. The following members offered to support this action: Gustavo Alonso, David Dunford, Rolf Henke, Alain Joselzon, Robert Malina, Francesca Sanna-Randaccio and Trevor Young (after the meeting, Mirko Hornung and Emmanuel Isambert joined the WG).

The Technology Readiness Level (TRL) definitions that would be utilised in the Clean Aviation programme were briefly discussed. It was noted that no single set of TRL definitions exist that are well defined and universally accepted by participants. The Chair suggested that a joint action with the TC be considered. No decisions were taken on this matter.

8. Next meetings

Members agreed to the dates for three further meetings of the SAB in 2023, as follows:

- 4 July 2023, to discuss CS2 ARM feedback and non-CO2 effects.
- 21 September 2023 to assess Call 2 and SRIA outcomes.
- 7 November 2023 to discuss feedback on CA reviews and WP24.

9. AOB

The JU agreed to members' request to make the SAB planning Excel file more legible when updating the document for 2023.

The JU agreed to provide an infographic timeline of ARM dates at the next meeting.

There was no other business and thus the Chair closed the meeting.

Minutes approved by:



SAB Chairperson

Date: 4 July 2023