

## Subcommittee on Environment and Energy | MINUTES

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**Meeting date & time** *August 26-27, 2014*

**Meeting location** *Airlines for America, Washington D.C.*

<b>Purpose</b>	E&E Subcommittee Guidance & Review for FY 2016 R&D Budget
<b>Facilitator</b>	Jim Hileman, DFO
<b>Note taker</b>	Jim Hileman
<b>Timekeeper</b>	Jim Hileman

### Minutes from Meeting

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**Presentation** *What's New in AEE* | **Presenter** *Curtis Holsclaw*

**Discussion:** In terms of personnel, Rich Swayze is our new Associate Administrator for Policy, International and Environment. Julie Marks is back as our Division Manager for Policy and Operations. Kevin Welsh is on assignment to the State Department. Our noise division recently had a vacancy and we are looking at the applicants. Our emissions division will be looking for applicants when its vacancy is posted.

Noise remains an issue for the FAA with concerns near LA, New York and Chicago. There are increased concerns regarding helicopter noise including congressional inquiries. We have secured end of year funding to address gaps that we have identified on helicopter noise.

We have started an initiative to look at how the FAA responds to noise complaints. We anticipate that the process of developing the initiative will last for roughly a year. If AEE research needs are identified from this effort, then we will let the Subcommittee know. There was a discussion about how actual or perceived changes in flight tracks can lead to noise complaints.

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**Presentation** *Responses to REDAC Recommendations & Actions* | **Presenter** *Jim Hileman*

**Discussion:** The subcommittee closed the recommendation from the Summer 2013 meeting. It closed all of the recommendations from the March 2014 meeting. The subcommittee agreed to the action items that were closed. The subcommittee agreed that AEE should seek increased engagement from ATO and ANG in the Subcommittee meetings.

<b>Action items (from previous meetings)</b>	<b>Person responsible</b>	<b>Deadline</b>
Use consistent metrics across the board to evaluate improvement in fuel burn.	Jim Hileman	March 2015
Create ASCENT fact sheet for sharing with community.	Jim Hileman	March 2015

<b>Action items (from previous meetings)</b>	<b>Person responsible</b>	<b>Deadline</b>
Revise Noise Roadmap based on input from meeting.	Becky Cointin	March 2015
Capture optimistic, realistic, and pessimistic cases within the goals analysis as opposed to a single scenario for the future.	Chris Dorbian	March 2015
For goals analysis, provide historical perspective to future projections as possible.	Chris Dorbian	March 2015

<b>Action items (from Previous Meetings)</b>	<b>Person responsible</b>	<b>Deadline</b>
Invite ATO and ANG to brief at next REDAC Subcommittee meeting. Consider adding a subcommittee member that provides FAA ATO/ANG perspective (NAS-Ops REDAC member perhaps) as well as NATCA.	Jim Hileman	March 2015

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**Presentation Budget Update | Presenter *Mike Gallivan***

**Discussion:** Mike presented FY16 budget details including information on the House and Senate language that is accompanying plus-ups for UAS, alternative fuels and the CLEEN program.

Mike presented information on the FY15 budget request. The debt ceiling and sequestration should not be issues for FY15, but we are unlikely to have a budget until after the election. We could have a continuing resolution that goes from anywhere from November to March depending on the election results. Unless Congress acts, sequestration will be an issue in FY16.

The Subcommittee had a discussion about whether or not the FAA RE&D budget is at an appropriate level with concerns expressed that it is too low – for example, Europe is spending over 3 billion euros per year on similar work.

There was discussion about how emerging issues will be funded. Dennis Filler has said that it will come from an above target request. The Subcommittee discussed this further and expressed concern that someone may see that an emerging issue is important and thus could end up coming at the expense of other existing work. The Subcommittee noted the messaging for this effort could be easily muddled.

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**Presentation Industry Perspective | Presenter *Steve Alterman***

**Discussion:** Steve discussed issues he has seen regarding noise and FAA Reauthorization.

Noise issues are leading to concerns being expressed from local jurisdictions up to Congress. For example, a group of Chicago Congressmen have inquired about aircraft community noise. A large number of complaints have come as a result of the implementation of NextGen and the movement of noise.

Reauthorization goes through end of September next year. It was noted that a great many concepts are being discussed and the FAA has started to draft its ideas on reauthorization. Funding levels are decreasing and RE&D is being reduced as a consequence.

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**Presentation** AEE Research Update | **Presenter** Jim Hileman

**Discussion:** Jim gave an overview of the Environment and Energy Research to refresh the Subcommittee on the research objectives. He also presented on the historical budget levels as well as the FY15 President budget and the FY16 budget request. The budget section gave a breakout of the funding by research topic. Jim finished the briefing with a discussion on the ASCENT COE program.

The Subcommittee expressed concerns about the large reductions in FY15 funding and its impacts on AEE research. Jim reiterated information from the Spring meeting on what programs would be cut and dramatically reduced.

The Subcommittee asked for a briefing at the Autumn meeting that provides specific details on how budget cuts are impacting AEE research. This should include the research that will not be funded as a result of these cuts.

The Subcommittee recommended that the ASCENT projects be numbered as was done for PARTNER.

Action items	Person responsible	Deadline
Provide a briefing at the next meeting on the research that has been dramatically curtailed and cut due to reduction in FY15 budget levels.	Jim Hileman	March 2015

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**Presentation** NextGen EMS - Update on Stakeholder Collaboration Program | **Presenter** Don Scata

**Discussion:** Don presented progress on the Stakeholder Collaboration Program and the website. The subcommittee was supportive of the work to create RELATE. They specifically asked that we pursue an environment page as well as to improve the searchability of the FAA webpages to lead to AEE research. They would like FAA to create a main web page at [faa.gov/environment](http://faa.gov/environment) with links to significant environmental activities like roadmaps, operations research, CLEEN, etc.

Action items	Person responsible	Deadline
Improve search criteria for AEE websites	Don Scata	March 2015
Pursue <a href="http://environment.faa.gov">environment.faa.gov</a> and <a href="http://faa.gov/environment">faa.gov/environment</a> as potential aliases for FAA environment research	Don Scata	March 2015

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**Presentation Questions for Consideration from D. Filler | Presenter Jim Hileman**

**Discussion:** Jim walked everyone through the document that contains the REDAC tasking from Dennis Filler. Chinita clarified that the Subcommittee can have both the research opportunities and recommendations in their report to the full REDAC.

The Subcommittee discussed the tasking and how other Subcommittees have addressed this tasking.

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**Presentation Emissions Research Update | Presenter Ralph Iovinelli**

**Discussion:** Ralph presented on efforts to develop a new emissions research roadmap. The effort is going to identify primary elements, recognize current capabilities, identify gaps and then create a plan to resolve these gaps.

There was much discussion about the emissions research roadmap effort and the need to ensure it is aligned with the Aviation Emissions Characterization Roadmap. There was also a discussion about the use of the research results and to ensure that FAA continues to use the results to feed the development of data for policymaking and to develop solutions.

Ralph gave an update on developments of an international standard for measuring emissions of non-volatile particulate matter. SAE hopes to ballot the Aerospace Recommended Practice in 2015 which is a key step to getting an international non-volatile particulate matter standard. He updated the Subcommittee on progress in measuring emission to help the standard setting process. Ralph gave an update on the aircraft CO<sub>2</sub> and nvPM emissions standards.

He presented on the ongoing work to examine air quality impacts from aviation. The Subcommittee discussed the challenges associated with modeling AQ impacts on a global basis. There was a discussion on the research effort to use 6 different models with consistent assumptions across the board to better understand the science involved. He briefly discussed ongoing climate work.

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**Presentation Aircraft Tech – CLEEN Update and CLEEN II Status | Presenter Levent Ileri**

**Discussion** – Levent presented update of progress in maturing technologies within the CLEEN program. He provided the updated CLEEN fact sheet to everyone in attendance. The Subcommittee was very pleased to see this and wants us to communicate these broadly.

There was agreement on the importance of NASA working on low TRL testing that is broadly applicable and FAA working on higher TRL testing that is more company specific.

There was discussion regarding the use of the term EIS and a request was given to have the “EIS” rephrased to read “Ready for EIS”.

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**Presentation NASA Update | Presenter Jay Dryer**

**Discussion:** Jay presented on NASA’s recent restructuring of their aeronautics program and how they developed their overarching strategy. The focus was on how they have reached their key research thrusts.

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**Presentation Operations Research Update | Presenter Julie Marks**

**Discussion:** Julie presented the operations research roadmap with a focus on plans for FY15 and how AEE are dealing the pressures we have in terms of budget. The Subcommittee discussed the need for additional research to reduce environmental impacts through operations

The Subcommittee discussed how operational procedures are incorporated by ATO into the NAS. Julie walked through the example of N-Control.

Chris walked through our ongoing efforts on Cruise Altitude Speed Optimization (CASO), Delayed Deceleration Approaches (DDA), N-Collaboration Surface Control, and Optimized Profile Climb (OPC).

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**Presentation Alt Fuels Update | Presenter Aniel Jardines**

**Discussion:** Aniel gave an update on the overall research efforts on alternative jet fuels. This included a report out on the recent ASTM approval of SIP fuels as well as the new ASCENT COE projects to analyze the entire alternative jet fuel supply chain as well as the national alternative jet fuel combustion program. The subcommittee requested a briefing on a compositionally based qualification process that defines appropriate fuel properties and values that achieve the primary figures of merit for alt fuels.

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**Presentation CAEP Update | Presenter Lourdes Maurice**

**Discussion:** Lourdes gave an update on research program is supporting Global Market Based Measure and work at the next Steering Group meeting.

ICAO Counsel have created a strawman concept to examine a Global MBM for international aviation and to use it as the basis for discussion and debate within the Environmental Advisory Group (EAG). Aspects of the work have been handed to CAEP for evaluation. Two elements have been handed to CAEP for examination: Monitoring Reporting Verification (MRV) and Carbon Unit Quality. We are devoted research efforts to these items.

We support efforts at CAEP on a number of fronts: CO2 standard, nvPM standard, alternative fuels, noise issues, science issues. We have technical papers at Steering Group on CO2 standard, PM standard, global MBM, alternative fuels within an MRV system, composition of the international fleet of aircraft, noise research program, helicopter noise, UAS environmental aspects and commercial space environmental aspects.

The US is able to be a leader in ICAO CAEP because of the efforts of the Environment and Energy research program. This is a direct result of the Subcommittee's recommendations.

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**Presentation National Jet Fuel Combustion Program | Presenter Mohan Gupta, Mark Rumizen (FAA), Mel Roquemore (AFRL), Tim Edwards (AFRL)**

**Discussion:** Mark walked through the overall program in terms of how it fits into the existing ASTM Certification/Qualification program, other benefits from the program, the technical work that would be done, and the figures of merit. Mohan described the programmatic elements of the work including how it will be done collaboratively by government, industry and academia.

A subcommittee member noted that the Future of Aviation Advisory Committee (FAAC) recommended this type of work and this subcommittee member was very supportive of our standing up this effort.

There was a recommendation to change the name of the NJFCP Steering Committee as the funds going to this portion of the program are doing more than just steering the work. It is also providing technical work.

The subcommittee noted that the program is nicely laid out and that it is good to see how it builds on existing efforts.

Action items	Person responsible	Deadline
Change name of steering committee such that folks understand what these funds are going toward	Mohan Gupta	March 2015
Provide a briefing on the National Jet Fuel Combustion Program at next REDAC meeting	Mohan Gupta	March 2015

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**Presentation** *NAJFS* | **Presenter** *Mohan Gupta*

**Discussion:** Mohan presented progress in the development of a national alternative jet fuel R&D strategy that is providing the coordinated R&D plan for the U.S. Federal Government. The first draft is completed and is undergoing review.

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**Presentation** *Fuel Efficiency Metric Development Efforts* | **Presenter** *Laszlo Windhoffer*

**Discussion:** Laszlo presented an overview of the work that we are doing to develop a new fuel efficiency metric for performance tracking within FAA. He discussed our current metric of fuel burn per distance and how using a payload-distance based metric could better meet the needs of the FAA. The Subcommittee discussed the relative merits of different metrics including the difference in payload types for commercial and business aviation.

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**Presentation** *Goals Analysis Update* | **Presenter** *Chris Dorbian*

**Discussion:** Chris presented progress in estimating future CO2 emissions, energy efficiency, and noise. He gave a refresher on what was done previously with CO2 as the example. He walked through the plans for the re-runs and how recently started ASCENT work will feed into this project.

There was discussion about the need to show the various components of the fuel life cycle that led to an action item.

There was also discussion about how FAA could handle the range of aircraft, operations, and alt fuels scenarios that are being created. It would be good to think through how to bring these together.

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Action items	Person responsible	Deadline
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**Action items****Person responsible Deadline**

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Develop a means of showing the life cycle CO2 emissions that are attributable to aviation versus upstream sources (extraction, refining and product transport) and include it in the CO2 time history.

Jim Hileman & Chris March 2015  
Dorbian

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**Presentation Noise Research Update | Presenter *Rebecca Cointin***

**Discussion:** Becky presented research being done within updated the noise research roadmap and progress that has occurred in the national noise survey. The Subcommittee noted their strong support of the roadmap and the fact that they are grateful for the approach being taken in the development of the survey.

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**Presentation Tools Update | Presenter *Jim Hileman***

**Discussion:** Jim presented the broad outlines of why we are developing tools and how we are using this thinking to develop a tools and analysis roadmap. He noted that FAA are in the very initial stages of developing this roadmap. There was agreement in the Subcommittee that this effort needs to be done in collaboration with NASA efforts.

One Subcommittee member asked us to think about how we communicate the intermediate steps in CAEP of going from emissions and noise to environmental impacts.

Jim presented updates on tool development efforts. He noted that AEDT2b may not be released until 2015 with the time delay being dependent on the code evaluation of the Design Review Group (DRG). He informed the Subcommittee that the FAA have started an examination of how the APMT-Economics tool could be improved. He also presented on new projects that are being started in the ASCENT COE. Jim finished the briefing with a few ideas for new projects that could be considered by the Subcommittee.

A Subcommittee member stated that he was very supportive of the combination of PDARS data stream and AEDT. Several Subcommittee members stated that they would like analyses to include an assessment of uncertainty and to keep this need in mind as AEE develops its tools and analyses.

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**General Discussion | Lead *Mahendra Joshi***

Mahendra provided some high level thoughts on the meeting. These were used to develop the findings and recommendations.

- There is a concern about the lack of F&E funding and how that will delay the incorporation of operational procedure improvements into the NAS that could reduce environmental impacts.
- They were impressed with progress of E&E research but they would like to see improved public access to it via the FAA website.
- They really liked the fact sheet from the CLEEN Program. Please share this broadly.

- They recognize that the roadmapping process is a disciplined process to identify gaps and needs. The Subcommittee would like to have more specifics on the Emissions Roadmap within the next 12 months.
- They appreciate the fact that FAA is providing leadership on alternative jet fuels within FAA and across the USG. They endorse and support the new combustion program – especially in regards to how it will lead to the development of a process that is composition based.
- They would like to see the roadmapping efforts at NASA and FAA be used to update the White House National R&D Plan.
- They would like to have an additional briefing on metrics as the work evolves.
- They requested the FAA to invite EPA to come to the meeting to give a briefing on their efforts that are relevant to international standard setting.

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**Break-out Meetings | Lead *Jay Dryer and Juan Alonso***

The Subcommittee broke into two subgroups to discuss the assignment from Dennis Filler. One group was led by Jay Dryer and the other was led by Juan Alonso.

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**Group Meeting | Lead *Mahendra Joshi, Jay Dryer and Juan Alonso***

The subgroups met and walked through their subgroup ideas for new projects. The priorities from the two groups were merged to develop the final list of ideas.

**Subcommittee Discussion of Open Recommendations** (Discuss status of FAA response and decide to close or remain open)

*All of the recommendations from the August 2013 and March 2014 meetings were closed.*

**Next Meeting – Date/Location/Agenda Items to be Included**

*March 17-18 in Washington DC – ACI-NA*

**Adjourned at 2:30 pm on Wednesday, August 27, 2014**

**Attendance and meeting agenda are captured in the attached documents**

**Attendees:**

On the phone: Sandy Lancaster, Mel Roquemore, Tim Edwards, Mark Rumizen, Lourdes Maurice

*REDAC Subcommittee Members:*

Mr. Steve Alterman (chair)  
Mr. Juan J. Alonso  
Mr. Jay E. Dryer  
Dr. Rudy Dudebout  
Ms. Jennifer Duke  
Mr. Charles L. Etter  
Dr. Steven Hamburg  
Mr. Mahendra C. Joshi  
Ms. Sandra Lancaster  
Dr. Dimitri Marvis  
Ms. Susan M. Presti  
Ms. Katherine B. Preston  
Mr. Ian Redhead  
Ms. Leslie L. Riegle  
Mr. Claudio H. Ternieden  
Ms. Nancy Young  
Mr. Darcy Zarubiak  
Dr. Joseph Zelina

*Others:*

James Hileman (DFO)  
Julia Nagy  
Gloria Dunderman  
Gregg Fleming  
Lourdes Maurice  
Mohan Gupta  
Gina Ronzell  
Rebecca Cointin  
Ralph Iovinelli  
Curtis Holsclaw  
Chantee Whitney  
Dennis Filler  
Jim Skalecky  
Levent Ileri  
Chris Dorbian  
Laszlo Windhoffer  
Don Scata  
Zia Haq  
Harry Baumes  
Sharyn Lie  
Nate Brown  
Mike Gallivan