Airlines for America®

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December 7, 2020

SUBMITTED VIA: http://www.arb.ca.gov/lispub/comm/bclist.php

Re: Airlines for America Comments on *Draft 2020 Mobile Source Strategy (dated November 24, 2020)*

To Whom It May Concern:

Airlines for America (A4A),[1] the principal trade and service organization for the U.S. airline industry, appreciates this opportunity to comment on the California Air Resources Board's (CARB) *Draft 2020 Mobile Source Strategy (dated November 24, 2020)* (*Draft 2020 MSS*). CARB provided Notice (dated November 24, 2020) of a public meeting to hear an update on the *Draft 2020 MSS* on December 10, 2020, which referenced its latest (November 24, 2020) draft,[2] and indicated that written comments not submitted at the meeting must be received by December 7, 2020, to be considered by the Board. We are submitting the comments by December 7, 2020, so that CARB staff and the Board will have an opportunity consider our comments.[3]

The U.S. airlines are a critical engine of prosperity and progress in our local, state, national and international communities. The airlines recognize that continued progress depends on protecting our environment and strengthening the sustainability of our economies. We acknowledge and embrace our responsibility to address potential impacts of our industry on the environment, including climate change and local air

[1] A4A members are Alaska Airlines, Inc.; American Airlines Group; Atlas Air, Inc.; Delta Air Lines; Federal Express Corp.; Hawaiian Airlines; JetBlue Airways Corp.; Southwest Airlines Co.; United Airlines Holdings, Inc.; and United Parcel Service Co. Air Canada is an associate member.

[2] The *Draft 2020 MSS* is available here: https://ww2.arb.ca.gov/sites/default/files/2020-11/Draft_2020_Mobile_Source_Strategy.pdf.

[3] We note that CARB also requested that written comments be submitted "at least 10 days prior to the meeting" (by November 30, 2020), "so that CARB staff and Board members have additional time to consider each comment." Unfortunately, with the intervening Thanksgiving holiday, this left only one working day from the date of the Notice to draft and submit comments by November 30th as requested. Although the December 10th meeting is intended to provide an "update" on the development of the MSS, we are mindful that – as highlighted in the Notice and the Draft 2020 MSS – the Legislature pursuant to Senate Bill 44 (SB44) has required CARB to update the 2016 MSS by January 1, 2021. This mandate appears to require only the "inclu[sion of] a comprehensive strategy for the deployment of medium duty and heavy-duty vehicles." SB44, Section 2; codified at CA Health & Safety Code § 43024.2(a)(1). It appears, therefore, that CARB need not finalize aspects of the *Draft 2020 MSS* that address sectors other than medium duty and heavy-duty vehicles by January 1, 2021. Many of our comments pertain to provisions in the *Draft 2020 MSS* that address aircraft and we urge CARB's staff and Board to consider taking more time to consider aspects of the MSS that do not pertain to medium and heavy-duty vehicles. In any event, if CARB intends to finalize the *Draft 2020 MSS* by January 1, 2021, we respectfully request staff and the Board to make every effort to consider our comments carefully before finalizing the MSS.

quality. This is not new. A4A and our member airlines have a long history of working cooperatively with CARB, local air districts and California airports to support their climate and air quality goals. It is in this spirit that we offer these comments and emphasize that we strongly support California's efforts to improve air quality and reduce climate pollutants.

We do have some concerns regarding the *Draft 2020 MSS*, most particularly that it identifies a number of "concepts" for addressing emissions from commercial aircraft that are clearly beyond the State's authority to implement. We address these concerns below.[4]

BACKGROUND

The U.S. airlines have a very strong environmental record and remain committed to advancing environmental progress. Commercial aviation has been an indispensable pillar of our national, state and local economies for decades. Prior to the onset of the COVID-19 pandemic, commercial aviation helped drive over 10 million U.S. jobs and over 5 percent of U.S. Gross Domestic Product (GDP). In California, according to the most recent Federal Aviation Administration (FAA) analysis, civil aviation accounts for about 5 percent of jobs (over 1.15 million in 2016) and drives over 4 percent of State GDP ($109.1 billion in 2016).[5] Economic impact studies likewise have affirmed the critical importance to local economies of aviation activity at California's major airports.[6]

The COVID-19 health crisis afflicting the world has, in turn, crippled our nation's economy, hitting the aviation sector particularly hard. In the most recent week for which data is available, nationally, U.S. passenger volumes were down 62% from year-ago

[4] We note carefully that CARB characterizes the 2020 MSS as limited to identifying "strategy concepts" that "are less defined than the measures included in the 2016 Strategy" and affirms that any "concept" identified in the 2020 MSS "will be translated into measures that will be included in the next State Implementation Plan (SIP) strategy . . . or other CARB planning documents to be released in the coming years." *Draft 2020 MSS* at 2, 4. We understand this to mean that any regulatory action or other measure intended to implement a "concept" identified in the 2020 MSS or identified in any other subsequent planning document (such as the SIP Strategy or SIP) ultimately may or may not be formally proposed and could not be finalized without further formal notice and opportunity to comment consistent with the State's Administrative Procedure Act (APA). We emphasize that these comments on the *Draft 2020 MSS* are not intended to constitute a comprehensive or final response to any specific policy, project, action or measure that may be put forward to implement the MSS. As such, A4A and our members expressly reserve any and all rights to comment on any regulatory measure or other action if and when it is formally proposed.

[5] *The Economic Impact of Civil Aviation on the U.S. Economy –State Supplement* (FAA; November 2020) at 10 (available here: https://www.faa.gov/about/plans_reports/media/2020_nov_economic_impact_report.pdf).

[6] *See, e.g.*, *Economic Impact Analysis – Los Angeles International Airport in 2014* (available here: https://laedc.org/wp-content/uploads/2016/04/LAWA_FINAL_20160420.pdf) (620,610 jobs in Southern California, $37.3 billion in labor income, $126.6 billion in economic output and $6.2 billion in state and local taxes); *2019 Economic Impact Study – San Francisco International Airport* (available here: https://www.flysfo.com/sites/default/files/SFO_Economic_Impact_Report_2019.pdf) (direct impact of 188,111 jobs, $14 billion in labor income and 42.5 billion in total revenues; total impact of 330,215 jobs, $25 billion in labor income and $72.7 billion in total revenues); *San Diego International Airport Economic Impact Study – June 2018* (available here: https://timesofsandiego.com/wp-content/uploads/2018/09/2017-01-06-economic-impact-study.pdf) (direct impact of 67,200 jobs, over $2 billion in payroll and $6 billion in economic output; total impact of 116,571 jobs, $3.9 billion in payroll and $11.7 in annual output).

levels, with passenger airline departures down 43%.[7] The effect of the pandemic on aviation activity at California's largest airports has been extreme, with total commercial air carrier operations down 61% at LAX, 69% at SFO and 62% at SAN;[8] across all California airports, total operations are down 50% from 2019 levels.[9] Looking forward, passenger flights in California scheduled for December 2020 are down 52% from December 2019.[10] The decline in aircraft operations has resulted in a similar magnitude of decline in fuel consumption (and so, associated emissions).[11] Declines in associated activity, e.g., operation of airport ground support equipment, will track the declines in aircraft operations.

Despite the magnitude of the challenge ahead, we have every expectation that our sector will be critical to helping the economy revive and thrive, eventually returning it to pre-COVID levels. However, at present, we believe air passenger volumes are unlikely to return to pre-COVID levels before 2024.[12] It is important to note that recovery of business traffic, which accounts for a disproportionate amount of carrier revenues relative to lower-yield leisure traffic, is likely to lag, potentially delaying a full recovery of the sector in financial terms. This means that airlines will be saddled with debt for years to come, limiting capital available for other investments. From an environmental perspective, it is also very important to note that the pandemic has accelerated the retirement of less fuel-efficient aircraft – as many as 400 in the U.S. passenger airline fleet in 2020 alone. As a result, when air transportation demand returns to pre-COVID levels, it will be served by more efficient aircraft fleets, thus very likely lowering associated emissions.

Our record demonstrates that our industry can grow and help the state and country prosper even as we continue to improve our environmental performance. For example, from 1978 to 2019, U.S. airlines improved fuel efficiency (on a revenue ton mile basis) by over 135 percent, saving over 5 billion metric tons of carbon dioxide (CO_2) – equivalent to taking more than 27 million cars off the road on average *in each of those years*. Similarly, since 1975, even as we quintupled the number of passengers served in the U.S., we have reduced the number of people exposed to significant levels of aircraft noise by 94 percent. U.S. airlines have continually demonstrated their ability to contribute to the nation's economic productivity, while minimizing their environmental footprint.

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[7] *See Impact of COVID-19 Updates*, Slides 10-11 (A4A; available here: https://www.airlines.org/dataset/impact-of-covid19-data-updates/#) (updated November 30, 2020).

[8] Data compares total air carrier operations from April through October at LAX (data available here: https://www.lawa.org/lawa-investor-relations/statistics-for-lax/volume-of-air-traffic), April through September at SFO (data available here: https://www.flysfo.com/media/facts-statistics/air-traffic-statistics/2020), and April through October at SAN (data available here: https://www.san.org/news/air-traffic-reports).

[9] Data compares total aircraft operations at all California airports from April-September in 2019 and 2020; Source: FAA's Traffic Flow Management System.

[10] *Impact of COVID-19 Updates*, Slide 12.

[11] *Impact of COVID-19 Updates*, Slide 36.

[12] *See Impact of COVID-19 Updates*, Slide 42.

Our environmental record is not happenstance, but the result of a relentless commitment to driving and deploying technology, operations, infrastructure and sustainable aviation fuel (SAF, or what CARB typically refers to as alternative jet fuel (AJF)) advances to provide safe and vital air transport as efficiently as possible within the constraints of the air traffic management system. Indeed, for the past several decades, airlines have dramatically improved fuel efficiency and reduced CO_2 and other emissions by investing billions in fuel-saving aircraft and engines, innovative technologies like winglets (which improve aerodynamics), and cutting-edge route-optimization software. Building upon this foundation, the U.S. airlines are continuing our efforts to improve environmental performance. Since 2009, we have been active participants in a global aviation coalition that committed to 1.5 percent annual average fuel efficiency improvements through 2020, with goals to achieve carbon-neutral growth beginning in 2020 and a 50 percent net reduction in CO_2 emissions in 2050, relative to 2005 levels.[13] The efforts our airlines are undertaking to further address emissions are designed to limit their fuel consumption and potential climate change and local air quality impacts responsibly and effectively, while allowing commercial aviation to continue to serve as a key contributor to the U.S., global, regional and local economies.

Airlines' primary focus is realizing further fuel efficiency and emissions savings through new aircraft technology, increasing levels of AJF deployment, modernization and optimization of the air traffic management system, public-private research and development partnerships, and a vast array of additional operational and infrastructure initiatives being undertaken by airlines together with regulators, airports, manufacturers and other aviation stakeholders. Airlines have been particularly focused on developing low-carbon, sustainable fuel alternatives, understanding that deployment of AJF will play an important role in achieving our climate goals.

As drop-in fuel that can reduce lifecycle greenhouse gas (GHG) emissions by up to 80% while also helping to improve local air quality, AJF is particularly vital since, unlike the on-road transportation sector (cars, trucks, buses, etc.), the aviation sector cannot electrify in the near-term and therefore will remain reliant on liquid fuels for years to come. For well over a decade, A4A and its carriers have been working diligently to lay the groundwork for the establishment of a commercially viable AJF industry. In 2006, we were instrumental in creating the Commercial Aviation Alternative Fuels Initiative® (CAAFI), which seeks to facilitate the development and deployment of AJF. CAAFI has played an integral role in obtaining the certification of the 7 SAF/AJF "pathways" that are now recognized under the ASTM International specification for aviation turbine fuel from alternative, non-petroleum sources (ASTM D7566). Nearly all of A4A's member carriers, moreover, have entered into offtake agreements over the years with AJF producers in a concerted effort to spur the AJF industry and utilize the fuel. These offtakes include those of United Airlines, which has been procuring AJF from the World Energy facility in Paramount, CA for use at LAX since 2016, and Alaska Airlines, American Airlines, and JetBlue, which have been using AJF at SFO since this past summer. It bears noting, too, that A4A was the original proponent and remained a key supporter of CARB's addition of AJF to the Low Carbon Fuel Standard (LCFS), which culminated in 2018 with the

[13] *See* A4A, "A4A's Climate Change Commitment," available at https://www.airlines.org/a4as-climate-change-commitment/; A4A, "Airlines Fly Green," available at https://www.airlines.org/airlines-fly-green/; *see also* Air Transport Action Group, "Climate Change," available at https://www.atag.org/our-activities/climate-change.html; International Air Transport Association, "Working Towards Ambitious Targets," available at https://www.iata.org/en/programs/environment/.

approval of AJF as a credit-generating fuel on a voluntary, opt-in basis.[14] In sum, we have been and remain deeply committed to the development of a commercially viable AJF industry in California (and elsewhere).

We also have long supported improvements to airport infrastructure and modernization of the country's air traffic management system on a business-case basis. For example, electrification of aircraft gates and installation of ground power units (GPUs) and pre-conditioned air (PCA) units provide access to a clean central heating and cooling system for aircraft while at parking positions. This allows airlines to run aircraft systems on electricity provided to the airport rather than relying on jet fuel-powered aircraft auxiliary power units (APUs). In addition, airports may install charging stations that serve electric-powered ground support equipment (GSE). Improvements to airport power grids ensure the reliability of electric power needed to take advantage of these systems. An important source of funding for such improvements is the FAA's Voluntary Aviation Low Emissions (VALE) Program, which makes funds generated by the aviation industry available to airports to support projects that achieve reductions in regulated air pollutants.[15] In addition, when necessary to improve efficiency of their operations, airlines also support major infrastructure projects such as upgrades to or reconfigurations of terminals and runway and taxi systems. We also have been supportive for many years of the federal government's effort to upgrade the nation's air traffic management system, known as NextGen, which is comprised of a suite of technologies and procedures to improve efficiencies in managing air traffic and reducing emissions. A4A and its members continue to work cooperatively with the FAA to implement elements of the plan that are supported by a sound business case.

In addition, we have strongly supported the development of policy tools to address aviation's impact on climate change, both within the International Civil Aviation Organization (ICAO) and the U.S. government. For example, we championed the ICAO agreement to adopt the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to serve as a complementary market-based measure to help "fill the gap" should we not be able to achieve carbon-neutral growth in international aviation through concerted industry and government investments in the other measures. Indeed, A4A continues to strongly support CORSIA and is committed to ensuring CORSIA's successful implementation.[16]

Similarly, airlines have strongly supported policy tools to help ensure that new emission-saving technologies continue to become available in the marketplace. This requires a sustained, substantial commitment of financial resources to research and development. This is particularly true with respect to aircraft and aircraft engine

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[14] *See* 17 CCR §§ 95482(b)(5), 95483(a)(1)(C). Since becoming creditable under the LCFS, almost 3.5 million gallons of AJF have been uploaded to aircraft in California. *See* https://ww3.arb.ca.gov/fuels/lcfs/dashboard/quarterlysummary/quarterlysummary_103020.xlsx.

[15] Funds come from two airport assistance programs, the FAA Airport Improvement Program (AIP) and the Passenger Facility Charges (PFC) program – AIP funds come from the Aviation Trust Fund, which is largely funded by taxes on airlines and airline passengers; PFCs are federally-approved taxes imposed on airline passengers by airports (airlines are required to collect the taxes and remit them to the airports).

[16] All A4A members have been complying with the emissions monitoring, reporting and verification provisions under CORSIA since they became applicable in 2019, and all A4A members have committed to complying with the offsetting obligations when they become applicable.

technologies, which can take decades from initial research to actual deployment and which can only occur once the technology has attained readiness levels that ensure flight safety is maintained. As a result, A4A and its member airlines have recognized the need for and supported government funding of basic research and development for aircraft, aircraft engines and other innovative technologies, including, for example, the FAA's Continuous Lower Energy, Emissions & Noise (CLEEN; 49 U.S.C. § 47511) program. GSE faces different challenges, including the fact that GSE represents only a small portion of the marketplace for off-road equipment, with smaller subcategories representing even smaller niche markets. As such, it can be difficult to garner sufficient interest from engine manufacturers to invest in developing GSE engines. Accordingly, A4A has supported efforts to develop engines designed specifically for GSE, which today focus on applications in which long duty cycles and/or very high load requirements have proven difficult obstacles to the development of viable alternatives to diesel.

U.S. airlines also have a long history of supporting development and implementation of economically reasonable, technologically feasible standards as necessary and appropriate. Aviation is a global industry and as such, it is critical that aircraft and aircraft engine emissions standards be agreed at the international level and not imposed unilaterally by one country or set of countries (or individual localities within those countries). Accordingly, such standards are appropriately developed at the international level by the Member States of ICAO – with the full participation of EPA and FAA and ultimately incorporated into U.S. law consistent with our nation's treaty obligations[17] and in harmony with the international community (including participating environmental Non-Governmental Organizations (NGOs)). For decades, as part of the delegation of the International Air Transport Association (IATA), A4A and our members have participated as observers to ICAO's Committee on Aviation Environmental Protection (CAEP), devoting significant time and resources to provide the technical input crucial to developing and implementing standards to control aviation emissions.

Long-standing ICAO standards for emissions certification of aircraft engines cover hydrocarbons, carbon monoxide, NOx and particulate matter (PM). ICAO/CAEP has focused a great deal of effort on NOx and we have strongly supported this effort – as is noted in the *Draft 2020 MSS*, significant progress has been made and as a result of successive, increasingly stringent NOx standards, aircraft engines produced today must be about 50% cleaner than under the initial standard adopted in 1997.[18] CARB should also take note that earlier this year, the ICAO Council adopted emissions standards for non-volatile particulate matter (nvPM) for both mass and number applicable to both in-production and new type aircraft engines. This culminated a years-long process to supersede ICAO's smoke standard and set the foundation for continued progress in the future. A4A strongly supports the incorporation of the nvPM standards into U.S. law.

Most recently, A4A filed comments with EPA strongly supporting the Agency's proposal[19] to adopt GHG emissions standards for certain aircraft engines pursuant to Section 231 of the Clean Air Act (CAA)[20] that are equivalent to the CO_2 Certification

[17] Convention on International Civil Aviation, commonly referred to as the "Chicago Convention," to which 191 countries, including the United States, are parties, or "Contracting States."

[18] *Draft 2020 MSS* at p. 103.

[19] 85 Fed. Reg. 51556 (August 20, 2020).

Standards for aircraft adopted by ICAO in 2017.[21] We note that both the California Attorney General (joined by representatives of several other states) and CARB also filed comments objecting to the Proposed Rule as inadequate, a sentiment reiterated in the *Draft 2020 MSS*.[22] Unfortunately, EPA improperly characterized the ICAO CO_2 Certification Standards and its own proposal as effectively requiring no improvement in fuel-efficiency and imposing no costs in the coming years. As explained in A4A's comments, EPA's characterization is based on an analysis that incorrectly diverges from the ICAO analysis, which demonstrates significant environmental benefits and led ICAO Members, including the U.S. (with EPA acting as adviser to FAA), to adopt the CO_2 Certification Standards. We strongly urge CARB to review and consider A4A's comments on the EPA proposal (which we incorporate here by reference). In short, incorporation of the ICAO Aircraft CO_2 Standards into U.S. law, like the United States' implementation of CORSIA, will provide an important foundation for our continued progress and we urge CARB to reconsider its stance on EPA's proposal.[23]

With respect to GSE, even despite our view that the State lacks the authority to regulate in this area, we nonetheless have cooperated with CARB over many years as it developed a suite of emissions regulations applicable to GSE (as well as other engine types), including its In-Use Off-Road Diesel (ORD) regulation, the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines (PE-ATCM) and related Statewide Portable Equipment Registration Program (PERP) rule, and Off-Road Large-Spark Ignition (LSI) regulation. In addition, to support efforts to carry out the South Coast Air Quality Management District's 2016 Air Quality Management Plan and the State's State Implementation Plan, A4A and its members worked very closely with commercial airports in the South Coast Air Basin and the District to develop voluntary programs to reduce emissions from GSE even more aggressively than would otherwise be required by already stringent State regulations. These voluntary GSE programs were incorporated into Memoranda of Understanding between the District and the five major South Coast airports (BUR, LAX, LGB, ONT and SNA).

As we recover from the current economic and social crisis induced by the COVID-19 virus, our commercial airlines look to the future with the belief that our sector will continue to thrive on the condition we continue to improve our environmental performance. It is in this spirit that we offer the comments below.

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[20] 42 U.S.C. § 7521.

[21] A4A's comments can be found in the rulemaking docket (EPA-HQ-OAR-2018-0276) at www.regulations.gov (document number EPA-HQ-OAR-2018-0276-0161).

[22] *Draft 2020 MSS* at p. 103.

[23] It also should be noted that aircraft and aircraft engine standards must also take into account interdependencies. For example, as a matter of physics, increased fuel efficiency (lower CO_2 emissions) makes it more difficult to improve NOx emissions; similarly, current understanding of the relationship between NOx and nvPM emissions is in the nascent stages. In general, controlling for one pollutant inevitably complicates the ability to control for other emissions. Noise has also been a central focus at the international level, resulting in standards that ensure aircraft produced today are about six times quieter than those produced 40 years ago. We remain committed to improving on our record of aggressively addressing concerns about aircraft noise. Noise is also an "interdependency" that must be taken into account and can complicate efforts to further reduce emissions.

COMMENTS

1. A4A SUPPORTS CALIFORNIA'S EMISSIONS GOALS, SUBJECT TO TECHNOLOGICAL FEASIBILITY AND COST EFFECTIVENESS

As stated at the outset of these comments, A4A and its members acknowledge and take seriously our responsibility to address potential impacts of our industry on the environment, including climate change and local air quality. Accordingly, we support CARB's efforts to achieve reductions in emissions of climate and criteria pollutants from mobile sources necessary to attain California's climate goals and compliance with National Ambient Air Quality Standards. We also share CARB's view that reductions must be achieved "consistent with Executive Order N-79-20 and SB44." In SB44, the Legislature has required the Board to "recommend reasonable and achievable goals for reducing emissions . . . as part of the comprehensive strategy based on factors that include, but are not limited to, the state's overarching emissions reduction goal established in Section 38566, the goals established in the California Sustainable Freight Action Plan completed in response to Executive Order No. B-32-15, technological feasibility, and cost-effectiveness."[24] Similarly, in Executive Order N-79-20, Governor Newsom was careful to require that the Board "act consistently with technological feasibility and cost effectiveness" when approving regulations and strategies for specified sources.[25] We strongly believe that any regulation, strategy or other regulatory action needs to be consistent with technological feasibility and cost effectiveness and urge CARB to incorporate these factors into any decision regarding any emissions source.

In this connection, we urge the CARB staff and Board to consider carefully the impacts of the COVID-19 pandemic. As discussed above, the impact of the pandemic on air transportation has been particularly severe. While we are confident that commercial aviation will eventually return to pre-COVID 19 levels of activity, this will likely take years, and significant economic effects on airlines could persist beyond that in the form of debt that could constrain airlines' ability to invest in new technologies. At the same time, the pandemic has accelerated the retirement of less-efficient aircraft, improving the fuel-efficiency of airline fleets and potentially accelerating the introduction of newer, more efficient aircraft to serve demand for air transportation services as the sector recovers. We appreciate the acknowledgement in the *Draft 2020 MSS* (page 107) that the pandemic has impacted aviation. However, it will be important to assess more critically the lasting impacts of the pandemic on air transportation demand, including the trajectory of the recovery and concomitant reduction in emissions (from both aircraft and GSE).[26]

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[24] SB44, Section 2, codified at CA Health & Safety Code § 43024.2(a).

[25] Executive Order N-79-20, ¶ 2.

[26] In particular, while we understand and respect CARB's concerns about emissions from "primarily-federally regulated sources," including aircraft (e.g., *Draft 2020 MSS* at p. 38), it will be very important for CARB and the South Coast Air Quality Management District to revisit its projected emissions inventories and the relative contribution to overall emissions in the State and the District. We also note that that CARB asserts that "future air travel [c]ould grow at a much slower rate when compared to the growth rate before the COVID-19 pandemic, which in turn would help reduce NOx emissions." *Draft 2020 MSS* at p. 107. While we agree the pandemic will impact near- to mid-term growth, and ultimately growth rates may not return to pre-pandemic levels and that this needs to be considered as policies and measures are developed, we disagree

We strongly support the "technology advancement of future aircraft" strategy identified in the *Draft 2020 MSS* insofar as it is aimed at leveraging and supporting programs like the FAA's CLEEN program. We call CARB's attention to research and development programs implemented by the National Aeronautics and Space Administration (NASA) that are important to the advancement of aviation technologies, including the Advanced Air Vehicles Program (AAVP) and Transformative Aeronautics Concepts Program (TACP), which include the Advanced Air Transport Technology (AATT), and Transformational Tools and Technology (TTT) programs. These NASA programs are aimed at developing and maturing fuel and emissions savings technologies (e.g., advanced aerodynamics, electrified aircraft propulsion, small core turbine engine technologies, high-rate production of composite materials, and innovative airframes). We have long supported fully funding such programs, as they are essential to ensuring that aviation technologies continue to advance and new emissions-savings technologies continue to come to the marketplace. Accordingly, we encourage CARB to join us in supporting these programs.[27]

As indicated in the Background section above, the availability of AJF in significant quantities is a key pillar to the achievement of aviation's GHG emissions reduction goals, and our members are deeply committed to the development of a commercially viable AJF industry in California (as well as elsewhere). Although the strategy laid out for aircraft in the *Draft 2020 MSS* makes no mention of AJF, we take this opportunity to express our view that the LCFS appears to be one of the most effective policy incentives for AJF development and deployment of any policy incentive in place anywhere in the world, particularly in combination with the opt-in credit that exists under the federal Renewable Fuel Standard. Even so, we encourage CARB to consider the recommended LCFS regulatory change recently put forward by the SAF Producer Group (and supported by SFO and other California airports) as a way to enhance further the growth of the AJF market in California.[28]

We also fully support use of positive "incentive programs" as a tool to achieve the State's goals as long as they are structured to ensure that they do not circumvent the strict limits on the authority of the State and its political subdivisions (see comment in next section below). In this light, to the degree "accelerated turnover of old aircraft" (*Draft 2020 MSS* at pp. 105-6) could be facilitated with such programs, we could support them – however, such programs would need to be very carefully structured as the State has no authority to mandate or otherwise require the use or operation of particular aircraft, aircraft engines or aircraft components. Similarly, we would welcome similar CARB support for FAA's VALE program, and continued use of State (e.g., Carl Moyer) or other federal funding mechanisms to support deployment of cleaner GSE and infrastructure necessary to support it. In our view, achieving full electrification of GSE by 2035 as outlined in the *Draft 2020 MSS* (at p. 112) would require significant support from such

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with the implication here that "lower growth" is a viable means to "help reduce emissions." Instead, we urge CARB to work to develop strategies that will reduce emissions while preserving economic growth and vitality. As discussed at length above, A4A and its members have demonstrated their ability to grow and continue to drive broader economic prosperity even as we aggressively reduce emissions.

[27] We do note that such technologies will not only help address NOx emissions, but also noise and GHGs, PM and other emissions.

[28] The SAF Producer Group's letter can be found at https://www.arb.ca.gov/lists/com-attach/13-lcfs-wkshp-oct20-ws-B2ITOVQ2UV1QJQFg.pdf.

programs to acquire the equipment and deploy the necessary infrastructure. As the *Draft 2020 MSS* illustrates, airlines already have made a great deal of progress in improving their GSE fleets and GSE is a relatively small contributor to emissions (<2 tpd NOx statewide). As a result, it will be imperative to assess the cost-effectiveness of achieving incremental reductions in emissions.

2. MANY OF THE "STRATEGIC CONCEPTS" IDENTIFIED IN THE *DRAFT 2020 MSS* CANNOT BE PURSUED CONSISTENT WITH FEDERAL LAW

It is essential that CARB recognize its authority to regulate the aviation sector is strictly limited under federal law. As noted above, we strongly support the general aim of the *Draft 2020 MSS* to identify viable strategies to reduce emissions of GHGs and criteria pollutants from mobile sources. At the same time, it is absolutely essential that CARB respect that it lacks authority to regulate aircraft, aircraft engines and aviation fuels and faces strict limitations on its authority to regulate the aviation sector generally.

The U.S. Congress has long recognized that commercial aviation safety and the efficiency of the National Airspace System depends on the application of a consistent set of regulatory requirements by a primary federal agency – the FAA – with the necessary expertise and capability to develop and administer those requirements. As such, courts have long held that the Federal Aviation Administration Authorization Act and its implementing regulations create a "uniform and exclusive system of federal regulation" of aviation safety that preempts state and local regulation. *Burbank v. Lockheed Air Terminal, Inc.*, 411 U.S. 624, 639 (1973).[29] In addition, the Airline Deregulation Act expressly prohibits states from enacting or enforcing any law "related to a price, route, or service of an air carrier." 49 U.S.C. § 41713(b)(1). The U.S. Supreme Court has interpreted the term "related to" broadly to preempt all state laws that have "a connection with or reference to" airline prices, routes, or services; a state law need not expressly address the airline industry or be specifically designed to affect it – as long as the law has a connection with airline prices, routes or services, preemption of the law is mandated under the ADA. *Morales v. Trans World Airlines, Inc.*, 504 U.S. 374, 384 (1992); see also *Rowe v. N.H. Motor Transp. Ass'n*, 128 S. Ct. 989 (U.S. 2008) (reaffirming Morales and its broad interpretation of ADA preemption).[30]

With this context, it is clear that the State does not have authority to implement a number of "strategy concepts" put forth in the *Draft 2020 MSS*, most specifically, the strategies to "improve the current air traffic operation (ATO) during the LTO cycle" (control measures to de-rate take-offs, reduce power during taxiing, and improve taxi times) and "transitioning towards zero-emission auxiliary power unit (APU)." All of these strategies would involve controlling or otherwise affecting the operation of aircraft and/or aircraft design, which are clearly and unequivocally within the exclusive jurisdiction of the

[29] See also Abdullah v. American Airlines, Inc.,181 F.3d 363, 370 n.10 (3d Cir. 1999) (aviation regulation is an area where "[f]ederal control is intensive and exclusive") (quoting Northwest Airlines, Inc. v. Minnesota, 322 U.S. 292, 303 (1944)).

[30] In addition, Section 233 of the Clean Air Act explicitly preempts any state or its political subdivision from "adopt[ing] or attempt[ing] to enforce any standard respecting emissions of any air pollution from any aircraft or engine thereof unless such standard is identical to a standard" established by the U.S. Environmental Protection Agency. See 42 U.S.C. § 7573.

FAA: the State and its political subdivisions have no authority to implement such strategies. As noted above, airlines are keenly focused on reducing fuel consumption and associated emissions and already work cooperatively with FAA, airports and other stakeholders to seek infrastructure improvements that can optimize flight profiles, reduce taxi times and provide access to clean gate-power. In addition, airlines have policies to – subject to the final judgment of the Pilot-in-Command – implement single-engine taxiing and use electric ground power in lieu of APUs where safe and feasible. Accordingly, we urge CARB to focus on supporting programs and initiatives that will help improve the efficiency of aircraft operations (e.g., NextGen) and provide funding to improve airport infrastructure (e.g., FAA's VALE program).

Again, we recognize that continued progress towards greater and greater efficiency from all sectors is needed to meet the State's concurrent imperatives to reduce emissions and to preserve the vitality of its economy. At the same time, we ask the State to respect the limits of its authority.

CONCLUSION

Again, A4A appreciates the opportunity to comment in this proceeding and respectfully requests the CARB staff and Board to consider our comments carefully as it finalizes the 2020 MSS.

Sincerely,

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