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NEW YORK AVIATION MANAGEMENT ASSOCIATION Comments Regarding the Climate Action Council Draft Scoping Plan

INTRODUCTION

The New York Aviation Management Association (NYAMA) has reviewed the Climate Action Council (Council) Draft Scoping Plan (Plan) mandated by the Climate Leadership and Community Protection Act (CLCPA) and welcomes this opportunity to comment on aspects of the Plan that impact airports and aviation operations and our abilities to respond to the state's climate goals.

NYAMA represents over 13,000 members and affiliate members, comprising 464 commercial service and general aviation airports, fixed based operators, consultants, engineers and various aviation industries and professionals who believe that economic development efforts at the state and regional level necessitate strong public investments in our aviation assets and facilities. Aviation connects people with each other and with those of other nations around the world.

Aviation is responsible for less than 3% of carbon emissions worldwide, and the sector is well on its way to achieving net zero by mid-century. There are 357 airports across the world that have been certified as Airport Council International (ACI) Airport Carbon Accredited, representing 46.1 per cent of global air traffic. That figure includes 58 carbon neutral airports. ACI members have committed to becoming carbon neutral by 2050, and 242 airports have individually signed up to that goal.

Airport managers and aviation companies are actively advancing strategies and technologies that contribute to the state's efforts to meet its carbon emissions reduction goals. The aviation industry will remain on the forefront of progress and innovation in the development and deployment of sustainable aviation fuel (SAF) and researching, testing, and bringing to market short and medium range electric passenger aircraft. Airports in New York are reducing facilities' carbon footprints by transitioning to zero emissions ground vehicles and equipment, installing EV charging stations for public use, and installing solar energy to generate electricity for parking garages and buildings.

THE CLIMATE ACTION COUNCIL DRAFT SCOPING PLAN

The Plan was released at the end of December 2021. The document determines that achieving intense decarbonization of the New York economy is feasible by mid-century. Emissions limits of the magnitude mandated by the CLCPA requires actions to be taken in all sectors of New York's economy. These efforts will require massive public and private sector investments, the sources of which are not made clear in the Plan.

NYAMA seeks to assist the state in reaching the goals set out in the CLCPA and to constructively engage with Council members, state legislators and policy makers on strategies that show promise and on what barriers there may be to achieving these goals.

The Plan lays out goals and strategies for the transportation sector to reduce net greenhouse gas (GHG) emissions to produce environmental benefits. The Plan makes clear that transitioning the transportation sector to zero-emission technologies is central to achieving the State's GHG emission reduction requirements. In most cases this means replacing existing vehicles that run on gasoline or diesel fuel with either battery electric, hydrogen fuel cell or future zero-emission technologies. The Plan recognizes that there are sectors that are challenging to electrify, including aviation, and allows that low-carbon fuels such as bioenergy or hydrogen may be necessary to help to decarbonize these sectors.

MAJOR AIRLINES SHIFT TO SUSTAINABLE AVIATION FUEL

The Plan proposes that a clean fuel standard could facilitate decarbonization of transportation fuels by requiring the providers of fossil fuels to reduce the carbon content of the fuels they provide by either blending lower carbon fuels or by acquiring credits from providers of lower carbon fuels into the stream of commerce.

On that front, some U.S. carriers have already contracted for purchases of sustainable aviation fuel from bioenergy firms for billions of dollars while currently using SAF for flights from New York's airports. JetBlue for example intends to convert 10% of total fuel usage to SAF — made from feedstocks such as used cooking oil and animal fat — on a blended basis by the end of the decade.

JetBlue will blend SAF with traditional jet fuel at an estimated 30% ratio and use it for its operations at New York-New Jersey Port Authority's John F. Kennedy International Airport, LaGuardia Airport and Newark Liberty International Airport. This move comes after United Airlines outlined a purchase agreement for 1.5 billion gallons of SAF over 20 years from Alder Fuels.

While these efforts are encouraging, these are only a few examples of the myriad activity that is already progressing throughout the aviation industry. It is notable then, that the Plan takes a cautious approach to avoid interfering with the dynamic market forces that are driving these important developments by suggesting:

Legislation could be structured to allow aviation fuels to voluntarily opt into the (Clean Fuel Standard) program, reducing emissions in this difficult-to-electrify subsector.

NYAMA wholeheartedly agrees with this measured, optional, and enabling approach.

THE END OF LEADED AVIATION FUEL

Aviation gasoline (avgas) is the aviation fuel commonly used in piston-engine aircraft. Avgas remains the only transportation fuel in the United States to contain lead. More than 222,600 registered piston-engine aircraft operate on leaded avgas. The most common and reliable type of avgas is 100 octane Low Lead, also known as 100LL. This leaded fuel contains tetra-ethyl-lead

(TEL), which is an additive used to prevent engine damage at higher power settings, so it is essential fuel to power these aircraft.

Working with the aviation industry and other stakeholders, the Environmental Protection Agency set a 2030 deadline to replace 100LL with unleaded aviation fuel. Thus, 100LL is intended to be phased out in a way that will not endanger piston aircraft operations or the safety of pilots, passengers, and crews. The effort brings together government and industry to research and test such a fuel replacement, develop an approval process, and establish a distribution path for ASTM-approved international standards for drop-in unleaded replacement fuel by the end of this decade. The initiative, Eliminate Aviation Gasoline Lead Emissions (EAGLE), will expand and accelerate government and industry actions and investments as well as establish the necessary policies and activities to permit both new and existing general aviation aircraft to operate lead-free, without compromising aviation safety and the economic and broader public benefits of general aviation.

OTHER CLEAN FUEL OPPORTUNITIES

Plan scenarios include initial market adoption of green hydrogen (H₂) in several end-use applications such as aviation by 2030. Aircraft powered by H₂ may be promising to reduce climate impacts. So far, research has shown that the economy of H₂ aviation is highly depends on the availability of low-cost, green liquid hydrogen (LH₂) supply infrastructure. In addition, operating costs of aircraft using H₂ technology will likely be significantly more that using conventional aviation fuels. Because the advances in SAF and electric aircraft development seem at this stage more promising as lower carbon strategies, more needs to be known about the H₂ alternative before it should be promoted or mandated for aviation use. NYAMA however continues to be interested in this and many other environmentally beneficial innovations and tracks their progress.

REDUCING THE AIRPORT CARBON FOOTPRINT

The Transition to Zero Emissions Vehicles

NYAMA has some concern with existing state mandates and goals of the Plan that promote replacing fossil fuel (gasoline, diesel) powered light-duty (LDV), medium- and heavy-duty (MHD) trucks and off-road equipment with those with zero emissions pursuant to an aggressive schedule. The success of this strategy is not yet probable without mature supply markets, commercialization of larger, more powerful trucks and off-road equipment manufacturing, and the build out of electric charging-supporting infrastructure for such vehicles and equipment. So far, the battery technologies that will be relied upon for zero emission vehicles (ZEVs) and backup storage for the power grid are not yet evolved to be widely available, or efficient enough to meet the Plan's vision as a critical component of the carbon-free statewide 100% electric energy system.

The Plan determines that, although they comprise only a small portion of total vehicles in the State, diesel trucks and port equipment are one of the largest sources of local air pollution in some communities. Replacing diesel trucks and port equipment with ZEV trucks and equipment would have a substantial impact on improving air quality statewide, according to the Plan.

Legislation signed into law last year establishing a goal for all new light duty vehicles (LDV) and non-road vehicles sold in the State to be zero-emission by 2035 and all new medium- and heavy-duty vehicles (MHV) to be zero-emission by 2045. To help meet the State's Climate Act requirements and goals, New York must first have a comprehensive and feasible implementation

plan in place to achieve these goals. Yet, the strategies proposed aim for an even more rapid transition to ZEVs, achieving close to 100% ZEV sales for LDVs by 2030, 50% ZEVs sales of medium-duty vehicles by 2030, and 80% ZEV sales of heavy-duty vehicles by 2035.

Barriers to ZEV Transition

The Plan acknowledges that ZEV trucks, buses, and non-road vehicles are significantly more expensive to acquire than diesel equivalents today. While the Plan forecasts acquisition and operation of electric vehicles to become more cost competitive as time goes on, predicted cost savings resulting from the transition to electric vehicles is realized over time, with a return on investment upwards to 20 years. These up-front acquisition costs within a relatively short phase-in period could very well be beyond the financial ability of most airports, many municipally owned, without significant government subsidies.

In addition, electric truck and equipment designs for airport operations are specialized and require balancing power, energy, runtime, performance in extreme temperatures, component life, reliability, weight, payload capacity, and cost. The effective replacement of a majority of these fossil fuel dependent vehicles and equipment with electric models in the time frames set forth does not appear to be possible given the Plan's uncertain reliability on technology that does not yet exist and funding streams that still need to be identified and developed.

While there are considerable efforts by U.S. based and international vehicle manufacturers, and multiple startups to design and test these new generation zero-carbon vehicles, the advancements in technologies and tooling manufacturing plants to produce ZEV trucks at the scale envisioned to meet climate goals worldwide is a fledging enterprise. Few ZEV trucks have demonstrated that they can meet the needs for the level of horsepower and torque on an hour-to-hour basis required for airport operations, construction or plowing snow. While progress is being made, existing supply chain problems, chip and mined mineral shortages, general inflation, and the rising cost of renewable energy to power this effort are raising concerns.

Airport Buildings and Terminal Emissions Reductions

The Plan calls for decarbonizing building operations and describes the elimination of GHG emissions from building end uses through improving the building envelope and switching from equipment and systems powered by burning gas, oil, or other fossil fuels to highly efficient equipment and systems powered by emissions-free energy sources. The plan specifically states that electrification of space and water heating with high efficiency heat pumps is a viable, cost-effective approach to decarbonizing operations for nearly all buildings in New York, and adds, "...as long as they are properly chosen, sized, and paired with an energy-efficient building envelope" (air sealing, insulation, and replacing poorly performing windows). Modifications such as these, to buildings, no matter where they are located or how old they may be are expected to be expensive retrofits or mandates for new construction when considered together.

Airports in New York have for years been at the forefront of incorporating energy conservation and environmental stewardship into their development plans and operational systems. Federal and State grants fund terminal expansion and modernization, construction of cargo receiving and distribution centers, new retail and concession options, general aviation customs facilities and much more that will improve the overall service level and passenger experiences at these airports.

These projects nearly always incorporate energy conservation and environmental enhancements, that add value to the applicants scoring in the competitive process. Future appropriation supporting airport grants will need to be significantly increased so that airports can meet infrastructure requirements while moving the state towards its climate goals.

What is concerning to airport managers is the future reliance on 100% electric-run facilities with no real commercially available state approved non-fossil fuel backup power systems yet identified in the event of a localized or systemwide grid failure. It is hard not to envision the significant impacts that a prolonged power outage would have on a busy airport's aviation operations and the public safety concerns it would pose. Consequently, appropriate responsive infrastructure actions and investments are difficult to plan for not knowing precisely what technologies will be available and the potential sources and reliabilities of supplemental power options permitted. It is also important to note that the FAA will have a significant role in determining what contingencies and designs will satisfy national safety standards for airports to be certified to continue to operate.

In this regard, the Plan analysis finds that widespread building electrification is needed even with the strategic utilization of low carbon fuels that are projected to be available, notably the use of Renewable Natural Gas (RNG) to meet back-up heating demands in a small proportion (less than 10%) of electrified buildings and the limited utilization of green hydrogen. To manage the impacts of widespread electrification on the State's electric grid, it will be important for buildings to adopt smart controls, energy storage, and other load flexibility measures.

NYAMA agrees that policymakers must assess the differential grid impact, costs, and benefits of all technologies including cold climate air source, ground source, and community thermal heat pump systems. The Plan acknowledges that so far, the related analysis is underway.

SUMMARY

Airports, airlines, and the aviation industries in New York continue to identify and address externalities that are inherent in airports operations. They have and continue to combine to reduce noise, GHG emissions, energy usage and environmental impacts. The industry is at the forefront of research into sustainable aviation fuel development and are already transitioning away from carbon-based fuels. With each new terminal construction or redesign, airports are incorporating the latest energy conservation measure for buildings, installing EV charging stations, upgrading to LED lighting and, where appropriate, developing solar energy systems. We as an industry are prepared to do more but will need the financial and technical assistance of the state and private sector in order to meet the goals of the CLCPA and adapting strategies in the Plan.

Given the far-reaching goals of a low-to-no-carbon economy, the unknowns today for planners are daunting. The success of the State's vision will mean every sector of New York's economy anticipating the realignment of energy generation types and sources, new public and private investment focuses, emerging and yet unknown technologies, building design and code mandates, capital and labor shifts, consumer attitudes and acceptance, and potential costs and the sources of revenue to finance it all. And, all this activity will need to be closely coordinated. Adding costs like state taxes on aviation fuels or aircraft, unnecessary regulations or premature mandates could slow or threaten the progress already being made.

NYAMA stands ready to continue to work with our State partners to assure a low carbon future. Thank you for your review and consideration of these comments. Please do not hesitate to reach out to me should you have questions or require more information.

Sincerely,

Michael S. Hall

Michael Hall, President