

Ontario International Airport Administration Offices

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Dear Dr. Lee,

Ontario International Airport (ONT or Airport) submits this annual progress report on the status of its on-Airport ground support equipment (GSE) consistent with the 2019 Memorandum of Understanding (MOU) entered into by the South Coast Air Quality Management District (AQMD) and the Airport, acting by and through the Ontario International Airport Authority (OIAA) in its capacity as the proprietor and certificated operator of ONT. The purpose of this annual progress report is to provide information on the MOU's GSE measure, which provides that all GSE on the Airport "associated with commercial operations achieve a fleet average NO_x emission factors of 2.2 and 1.0 g/bhp-hr by January 1 of 2023 and 2031, respectively." Since the execution of the MOU, the Airport has been working with its tenants to make progress toward the targets identified in the MOU through the accelerated turnover to cleaner equipment.

Consistent with MOU Attachment A (specifically Section III.B.1 therein), the Airport's annual progress report includes a list of GSE subject to the MOU's commitment coupled with the required equipment-specific information. Please see Table 1: 2023 Ground Support Equipment (GSE) MOU Reporting Data included with this transmittal. The emissions inventory calculations are provided in Table 2: 2023 GSE Emissions, and the equipment emission factors are provided in Table 3: 2023 GSE Fleet Average Emission Factor. A summary of the GSE inventory in the 2017 baseline and 2023 fleet is provided in Table 4: ONT 2017 and 2023 GSE Inventory. Further information on these topics is provided below.

CALCULATION METHODOLOGIES

DATA COLLECTION METHODOLOGY

The GSE inventory was developed based on tenant-reported updates to annual equipment inventory information. Tenants provided GSE equipment specifications; reported dates and destinations of equipment changes; and, in cases where data was available, reported equipment activity data from hour meter readings. Annual activity data was derived from the OFFROAD2017 and OFFROAD2021 databases when activity hours were not reported by the tenants.

The scope of the MOU covers GSE that is operated on-Airport property. There is one off-Airport operator that operates GSE temporarily during the peak holiday season on Airport property. For purposes of this report and based on the Airport's current understanding, activity data from these GSE was prorated based on two months of on-site use.

GSE that is licensed for on-road use is not included in the scope of the MOU's GSE reporting. Further, non-electric GSE with power ratings less than or equal to 25 horsepower are exempt from the California Air Resource Board's (CARB) in-use off-road diesel-fueled (ORD) fleets and large spark-ignition (LSI) fleets regulations, upon which the MOU's GSE measure is predicated. As such, these GSE also are not included in the overall fleet average performance level target calculation.

EMISSIONS INVENTORY CALCULATION

In July 2021, the methodology for calculating GSE emissions was modified as requested by AQMD to incorporate the latest emission standards for gasoline and liquefied petroleum gas (LPG) equipment based on existing, adopted regulations for LSI equipment. Revisions to the methodology were implemented as of 2021 and remain unchanged for the 2023 progress report calculation methodology. The 2023 progress report uses the updated gasoline/LPG emission factors, deterioration rates, fuel correction factors, and load factors provided by AQMD.

Activity levels for the 2023 reporting year were primarily sourced from the OFFROAD2017 and OFFROAD2021 datasets, except in instances where the GSE operator provided hours of operation based on hour meter readings. AQMD provided a standardized activity level approach to employ for the 2023 emissions inventory as described below:

For each GSE, activity shall be determined using the order of operations below:

1. Use actual operating hours from the tenant, if provided. If the tenant provided hours only for the prior year, use those hours for the reporting year.
2. Using OFFROAD model defaults, if the same model year (MY) and horsepower are available for both years from the OFFROAD model, use the reporting year operating hours unless there is a significant difference in hours between two years (i.e., because of low

population). If the difference is greater than 25%, use prior year's operating hours for the reporting year.

3. If default average operating hours for the matching GSE category from the OFFROAD model results are available for the prior calendar year but are not available for the current calendar year, use the same operating hours from the prior year for the reporting year.
4. If the exact match does not exist in the OFFROAD model, use the following prioritization:
 - a. If a match exists in other fuel types for the same GSE type, MY, and hp bin, use the average operating hours from this match.
 - b. If a match exists in other hp bins for the same GSE type, fuel, and MY, use the average operating hours from this match (using closest hp bin match).
 - c. If a match exists in other MY for the same GSE type, fuel, and hp bin, use the average operating hours from this match (using closest MY match).
 - d. The match should be reasonable. For example, a 1999 MY forklift should not be using a 2010 MY forklift as the off-road model surrogate.
 - e. If a close match exists in any combination of the three parameters (fuel, MY, and hp bin) for the same GSE type, use the average operating hours from this match.
5. If the resulting hours from Step #4 are not reasonable, continue to search previous calendar years' data in OFFROAD2017 until a reasonable match is found (i.e., 2020, then 2019, then 2018, etc.) or review OFFROAD2021 until a reasonable match is found.

When engine model year data were not available in OFFROAD2017, a match in OFFROAD2021 was used using the closest calendar year in the database.

Furthermore, to account for on-site utilization, activity levels were prorated based on the date that each piece of pertinent equipment was added or removed from the Airport.

EMISSION FACTOR CALCULATION

The NO_x emission factor fleet average is calculated as a straight average of emission factors derived from the OFFROAD2017 database for San Bernardino County. Emission factors were derived from the database for the 2023 calendar year (CY) and matched for each piece of equipment by GSE type, fuel type, model year, and horsepower bin. If an exact MY and HP bin match was not available for CY 2023, previous calendar years were reviewed for an exact MY and HP bin match. Where an exact MY and/or HP bin match did not exist for any calendar year in OFFROAD2017, an alternate MY/HP bin combination within the fuel type, if possible, or within another fuel type, was selected to look up emission factors for CY 2023. Such combinations were selected based on what would most accurately represent the specific equipment. Lastly, the selected OFFROAD2017 emission factor was compared against the NO_x emission factor reported in the first year the specific unit was reported. If the percentage difference for the same GSE is greater than or equal to 25%, the first reporting year emission factor was used. MY-specific emission factors from OFFROAD2017 are derived by dividing total emissions by the total annual HP-hours and GSE-type load factor.

PERFORMANCE LEVEL SUMMARY

By the end of 2022, ONT's NOx fleet average emission factor for GSE operating on Airport property was 2.43 g/bhp-hr. Based on the make-up of the GSE fleet at the end 2023, the NOx fleet average emission factor was 2.60 g/bhp-hr.

While the Airport was able to achieve emissions reductions and continuously improve its performance level in 2020, 2021, and 2022, the NOx fleet average emission factor has increased in 2023, in part due to electric GSE being removed from the Airport and the addition of older GSE into the GSE inventory. More specifically, eleven (11) electric GSE were sold, relocated, or retired from the ONT fleet, including the transfer of four (4) GSE units to other airports in the South Coast Air Basin. Airport tenants also brought on older combustion GSE, including seventeen (17) GSE with MY older than 2010. For more details on the GSE equipment, please refer to the Equipment Summary Tables.

Thus, at the conclusion of 2023, the NOx fleet average emission factor continues to remain above the 2.2 g/bhp-hr performance level target set for January 1, 2023. The Airport is actively engaging with tenants to lower the NOx fleet average emission factor in 2024 by focusing on the operators with the oldest GSE, as described in greater detail below.

LOOKING FORWARD

COLLABORATION AND COMMUNICATION WITH TENANTS

To ensure progress towards the MOU targets, the Airport is closely working with its tenants to obtain GSE fleet improvement plans for those fleets with the oldest, least clean GSE. The Airport has requested that such tenants' improvement plans include details on the turnover of the oldest GSE present in the tenant's GSE fleet (Tier 0/1 diesel and MY $\leq$ 2000 gasoline/LPG/propane), as well as an understanding of when the change is expected to occur, prioritizing changes in 2024 as feasible. In the communications with these tenants, the Airport has reminded the tenants of CARB's amendments to the in-use off-road diesel-fueled fleets regulations, consistent with ONT's discussions with AQMD staff, and identified specific pieces of equipment that it would like to be addressed.

As OIAA's Executive Vice President, I also have personally met with the ONT Airline Technical Representative (ATR) to discuss the findings reported in this annual progress report. The ATR is employed by the consulting firm AvAirPros, and is responsible for facilitating coordination between ONT and tenant management on all technical and financial matters at ONT. My discussion with the ATR included a review of the MOU, stressing the importance of each airline's responsibility to work closely with ONT by identifying all opportunities to clean up the GSE fleets at ONT to meet the targets set forth in the MOU.

In addition, OIAA's Chief Executive Officer, Atif Elkadi, will revisit this topic with the ONT airline representatives at the monthly meeting of the Airport and Airline Affairs Committee (AAAC) on

June 4, 2024. The AAAC is comprised of OIAA senior staff and airline senior representatives at ONT, and meets monthly on various financial and operational topics to identify key airport needs. Mr. Elkadi will stress the importance of the MOU, specifically discussing the proposed administrative penalties and incentives that will be included as part of ONT's GSE Motor Vehicle Operating Permit (MVOP) program, which is discussed further below. This topic (i.e., the MOU) also will be established as a recurring agenda item at these AAAC meetings to continue engagement with senior airline representatives and ensure there is a focus on the commitment and compliance with the MOU.

The Airport anticipates that the retirement, removal, or replacement of these oldest GSE, would allow the Airport to meet the CY 2023 performance target. Based on a review of the 2023 GSE inventory, the removal or replacement of the 20 oldest units would allow ONT to meet the 2023 performance level target. Through communication with the airport tenants, the Airport expects to be able to evaluate and identify the timeline towards compliance with MOU requirements.

GSE MVOP PROGRAM

The Airport is also working to expand its current Motor Vehicle Operating Permit (MVOP) program to include GSE at the Airport. Implementation of a GSE MVOP program is expected to improve equipment tracking on the Airport's premises, as well as enhance the consistency and accuracy of annual reporting. By taking steps to have a more comprehensive understanding of GSE on the Airport's premises, the Airport will use this information to leverage communications with tenants to understand their fleet transition plans, infrastructure needs, and ensure that the GSE brought on-site moving forward are aligned with MOU goals.

Additionally, this program will both: (i) encourage tenants to replace and/or eliminate older GSE through the use of financial incentives that reduce registration fees for clean equipment, and (ii) impose discretionary penalties based on a tenant's failure to adhere to the program's registration and reporting requirements, and/or failure to achieve reasonable progress in its fleet composition. This program is expected to facilitate ONT's achievement of the MOU's fleet average emission factor targets.

The Airport is targeting to have the tracking part of this program in place in 2024 and engaging with the tenants through this program to accelerate improvements to the GSE fleet. Please see Attachment A for an overview of the GSE MVOP program objectives and actions.

ELECTRIFICATION INFRASTRUCTURE PLANNING

As the Airport evaluates their long-term planning goals and objectives, the Airport is continuing to study the infrastructure needed to support on-site electrification, including the transition to electric GSE. The Airport plans to initiate engineering design for adding infrastructure to support electric Ground Service Equipment (eGSE) charging at Terminals 1 and 2 in Q3 2024 and is targeting construction of this project in 2025. Terminals 1 and 2 currently serve passenger, cargo, and all international arrivals. The project that will be subject to engineering design proposes to

add four (4) 80kW 16-port chargers at Terminal 1, and seven (7) 40kW dual-port chargers and one (1) 80kW 8-port charger at Terminal 2.

The Airport also initiated Technical Working Group (TWG) meetings with Southern California Edison (SCE) in early 2024. The TWG meetings are intended to create a collaborative planning process, ensuring that SCE is fully prepared to supply power to OIAA's upcoming facilities. As a result of the May 2024 TWG meeting, the Airport will initiate a Method of Service study with SCE in Q3 2024 to identify near-term power infrastructure upgrades at ONT (e.g., potentially adding a new substation in the northeast quadrant of the Airport). Such power infrastructure upgrades will allow the Airport to accomplish additional ZEV infrastructure implementation in the future: additional eGSE chargers at Terminal 4 and fleet charging in the maintenance yard.

In closing, ONT is committed to maintaining its collaborative efforts with AQMD and the airlines and tenants to make necessary adjustments to reach its fleet average performance level targets. In furtherance of that collaboration, we propose to meet with AQMD on a monthly basis to report on status and discuss progress towards the MOU targets. Please feel free to contact me at (909) 544-5434 or kkavanagh@flyontario.com with questions regarding this report. Thank you for your consideration and partnership in pursuing viable clean air initiatives in the airport sector.



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