

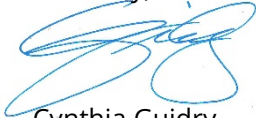
January 4, 2021

Zorik Pirveysian
Planning & Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Dear Zorik:

The City of Long Beach is pleased to submit this second progress report as requested by the South Coast Air Quality Management District (SCAQMD) on the status of the Memorandum of Understanding (MOU) between the City and SCAQMD regarding ground support equipment (GSE) at Long Beach Airport (LGB). The purpose of this report is to provide an interim update report concerning progress on the MOU measure for LGB.

Sincerely,



Cynthia Guidry
Director

LGB SCAQMD MOU Interim Update Report





Long Beach Airport SCAQMD MOU Interim Update Report January 4, 2021

1.0 INTRODUCTION

The City of Long Beach (the City) is pleased to submit this progress report as requested by the South Coast Air Quality Management District (SCAQMD) on the status of the Memorandum of Understanding (MOU) between the City and SCAQMD regarding ground support equipment (GSE) at Long Beach Airport (LGB or Airport). The MOU was entered into by the City and SCAQMD on December 6, 2019. The purpose of this report is to provide an update concerning progress on the MOU measure for LGB. LGB has adopted a GSE program as part of the MOU with SCAQMD to reduce the airport-wide GSE NOx emission factors to specific targets by 2023 and 2031.

The Airport has been working on implementing this measure by installing electric GSE charging infrastructure at all passenger aircraft parking positions, as well as replacing several older chargers that were no longer operating efficiently. In addition, airlines and other GSE operators have been evaluating the purchase of cleaner burning or electric equipment as replacement units for those that have reached the end of their useful lives. However, in February 2020, the novel coronavirus (COVID-19) emerged and significantly disrupted virtually all aspects of life and commerce throughout the world. The demand for air travel nationally and internationally has decreased to unprecedentedly low levels and the outlook for recovery remains uncertain. Given these developments airports and airlines will continue planning for compliance with the MOU targets, but actual plans may be delayed based on the extent and duration of the pandemic and impact on air travel.

This update will summarize the progress made to date and note the intended next steps for the Annual MOU submittal in June 2021. Additional detail on the progress through May 2020 can be found in the interim report issued in June 2020 (included as **Attachment I** to this report).





2.0 PROGRESS ON MOU SCHEDULE 1 – GROUND SUPPORT EQUIPMENT

2.1 MOU Targets

MOU Schedule No. 1 is a measure for ground support equipment¹. The measure requires that all GSE associated with commercial operations achieve a fleet average NOx emission factors of 0.93 and 0.44 grams per brake horsepower hour (g/bhp-hr) by January 1, 2023 and 2031, respectively.

2.2 Progress to Date

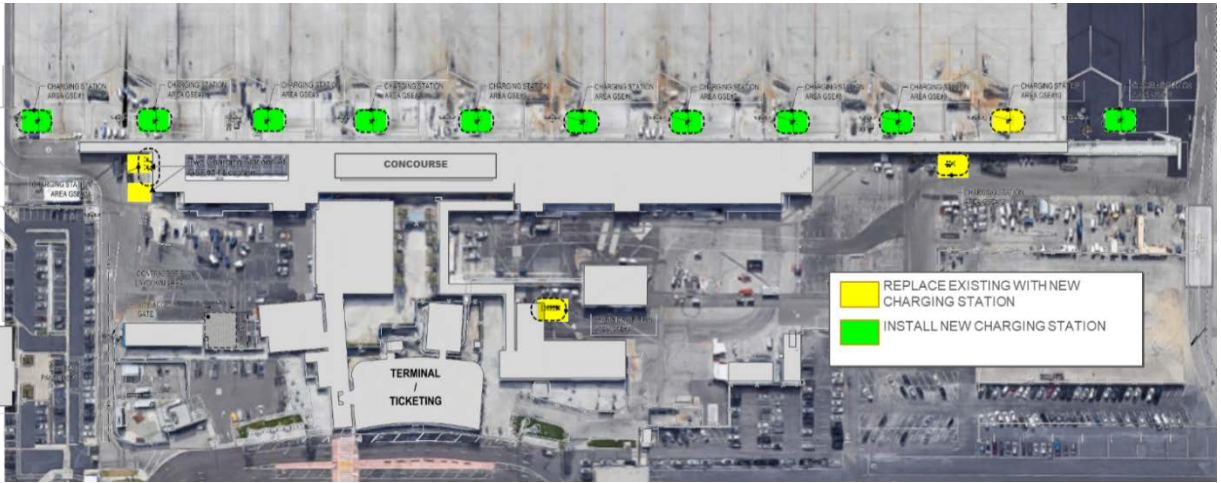
In February 2020, the City completed installation of electric GSE charging stations at all 11 passenger aircraft parking positions at LGB. The GSE electric charging project also included replacement of five aging and inefficient charging units. At this time, electric GSE charging stations are operational at the passenger aircraft parking positions and at several GSE storage and staging locations around the LGB terminal. Based on current assessments, LGB infrastructure is able support GSE electrical demands for the airlines and third parties. We will remain in communication with airlines and third party GSE operators to encourage the continued conversion of GSE.

¹ Ground Support Equipment or “GSE” is any vehicle or equipment used to support aircraft operations that is subject to, or included in compliance plans to meet, the requirements of the California Air Resources Board (CARB) In-Use Off-Road Diesel (ORD) Vehicle Regulation Program, CARB Off-Road Large Spark-Ignition (LSI) Engine Fleet Requirements Regulation Program, or CARB Portable Equipment Registration Program and associated Portable Diesel Engine Airborne Toxic Control Measure. Furthermore, GSE as defined here only includes equipment that is not subject to compliance with SCAQMD Rule XX – RECLAIM, or included in a mobile source emission reduction credit program under SCAQMD Rule XVI.





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3.0 NEXT STEPS





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Planning has begun for the development of updates to the LGB GSE fleet and emission factors due to SCAQMD by June 1, 2021. GSE data collection will begin in the 1st Quarter of 2021, with data evaluation and analysis continuing into the 2nd Quarter of 2021. Per the MOU Schedule No. 1 – Ground Support Equipment, in Attachment A to the MOU, the June 1, 2021 report will include the following information:

- 1) List of ground support equipment subject to this GSE measure with the following information:
 - a) Equipment ID
 - b) Equipment type
 - c) Fuel type
 - d) Engine model year
 - e) Power rating (hp or kW)
 - f) Engine tier level (for diesel engines)
 - g) Annual activity data for non-zero emission equipment that is sufficient to determine emission reductions at a reasonable level of accuracy (i.e., actual operating hours from hour meter readings/maintenance records, average operating hours representative of equipment type and airport, or average operating hours by equipment/fuel type from CARB's OFFROAD model, if applicable)
- 2) For non-zero emission ground support equipment subject to this GSE measure, information regarding the sale or retirement of equipment available through CARB's DOORS system and, for pre-Tier 4 diesel, pre-2010 gasoline, or pre-2010 LPG ground support equipment relocated from LGB to another airport within the South Coast Air Basin, identify: a) the airport to which equipment is relocated, b) date of relocation, and c) estimated projected usage hours.
- 3) An annual emission inventory for all ground support equipment associated with commercial operations at LGB, including methodology and calculations.

Airlines and other GSE owners/operators at LGB will be asked to complete forms shown in **Attachment II** to this report.





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**Long Beach Airport
SCAQMD MOU Interim Update Report
January 4, 2021**

Attachment I - LGB SCAQMD MOU Interim Report, Dated June 1, 2020





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Long Beach Airport SCAQMD MOU Interim Report June 2, 2020

1.0 INTRODUCTION

The City of Long Beach (the City) is pleased to submit this progress report as requested by the South Coast Air Quality Management District (SCAQMD) on the status of the Memorandum of Understanding (MOU) between the City and SCAQMD regarding ground support equipment (GSE) at Long Beach Airport (LGB or Airport). The MOU was entered into by the City and SCAQMD on December 6, 2019. The purpose of this report is to provide an interim report concerning progress on the MOU measure for LGB. LGB has adopted a GSE program as part of the MOU with SCAQMD to reduce the airport-wide GSE NOx emission factors to specific targets by 2023 and 2031.

The Airport has been working on implementing this measure by installing electric GSE charging infrastructure at all passenger aircraft parking positions, as well as replacing several older chargers that were no longer operating efficiently. In addition, airlines and other GSE operators have been evaluating the purchase of cleaner burning or electric equipment as replacement units for those that have reached the end of their useful lives. However, in February 2020, the novel coronavirus (COVID-19) emerged and significantly disrupted virtually all aspects of life and commerce throughout the world. The demand for air travel nationally and internationally has decreased to unprecedentedly low levels and the outlook for recovery remains uncertain. Given these developments airports and airlines will continue planning for compliance with the MOU targets, but actual plans may be delayed based on the extent and duration of the pandemic and impact on air travel.





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2.0 PROGRESS ON MOU SCHEDULE 1 – GROUND SUPPORT EQUIPMENT

2.1 MOU Targets

MOU Schedule No. 1 is a measure for ground support equipment¹. The measure requires that all GSE associated with commercial operations achieve a fleet average NOx emission factors of 0.93 and 0.44 grams per brake horsepower hour (g/bhp-hr) by January 1, 2023 and 2031, respectively. To achieve this measure, the Airport will and has been working with Airport tenants to achieve the performance targets by specified dates through accelerated turnover to cleaner equipment and installation of electric GSE charging infrastructure at LGB. As part of this progress report, we have included information regarding the overall background on the Airport's efforts in working with the airlines to make progress on this measure.

2.1.1 Description of GSE Fleet Maintenance and Replacement Consideration

Airlines and air cargo handlers require a wide variety of GSE to support aircraft ground operations and are essential to ensuring the safety and efficiency of the air transportation system in California (and across the National Airspace System). In certain cases, airlines and cargo operators own, operate, and maintain their own GSE fleets. In other cases, airlines contract fixed base operators (FBOs) or ramp service providers to handle GSE operations. In either case, GSE operators continuously maintain, repair and replace GSE to keep the fleet operational and meet the needs of the aircraft operations. In addition, GSE operators in California must repower or replace older units in order to keep their state-wide fleets in compliance with the California Air Resources Board (CARB) In-Use Off-Road Diesel-Fueled Fleets Regulation, CARB's Large Spark Ignition (LSI) Rule, the Portable Equipment Air Toxics Control Measure (ATCM) and Portable Equipment Registration Program (PERP). This requires complex coordination among managers at each airport and at the corporate level to ensure compliance with environmental requirements while maintaining operational capacity and economic viability.

¹ Ground Support Equipment or "GSE" is any vehicle or equipment used to support aircraft operations that is subject to, or included in compliance plans to meet, the requirements of the California Air Resources Board (CARB) In-Use Off-Road Diesel (ORD) Vehicle Regulation Program, CARB Off-Road Large Spark-Ignition (LSI) Engine Fleet Requirements Regulation Program, or CARB Portable Equipment Registration Program and associated Portable Diesel Engine Airborne Toxic Control Measure. Furthermore, GSE as defined here only includes equipment that is not subject to compliance with SCAQMD Rule XX – RECLAIM, or included in a mobile source emission reduction credit program under SCAQMD Rule XVI.





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Over time, GSE fleets are turned over as older pieces of equipment are replaced with newer models. GSE typically has a useful life span of approximately 20 (but ranging up to 30) years

depending on the equipment type, maintenance routine, and workload of each unit. When reaching the end of its useful life, equipment is typically scrapped for parts and removed from the fleet. This equipment is then replaced with a new model. New GSE can also be added to a fleet to accommodate new operations (such as cargo vs. passengers) or meet increased demand. Furthermore, GSE operators may purchase multiple units at once for economic reasons. With hundreds of pieces of equipment at each airport and thousands across the state, GSE fleets are an ever-changing mix of new and aging equipment.

As GSE fleets are turned over, they typically have lower average nitrogen oxides (NOx) emission rates. Newer models of combustion engines generally have lower NOx emission rates compared to their older counterparts. In addition, some new equipment can be powered with zero-emission (ZE) or near-zero-emission (NZE) technology.

2.1.2 Description of GSE Electrification Considerations

Electric GSE has become more widely available and deployed over the past 10-20 years. Certain types of GSE, such as baggage and cargo tractors and belt loaders are more amenable to electrification as they have relatively low power requirements and manageable duty cycles. Other types of GSE, including aircraft push backs / tow tractors, cargo loaders and ground power units (GPUs), are less suited for electrification due to their operational demands. In all instances, however, the viability of operating electric vehicles depends on access to adequate on-airport (e.g., charging) and off-airport (e.g., generation) infrastructure and airport configuration (e.g., distances and grades). These factors may vary even within airports and each GSE operator must assess the viability of electric GSE in the context of their operational needs and constraints.

Airlines and other GSE operators have been supportive of efforts to expand the use of electric GSE for many years. In the South Coast AQMD, airlines and other GSE operators, with the support of their airport partners, have effectively implemented electric GSE at all five commercial airports. They have established procedures and plans to increase utilization of electric GSE, utilized grant funding and incentive opportunities to procure additional electric GSE and install electric vehicle charging infrastructure. This historical implementation of these procedures and plans has resulted in widespread use of electric GSE, notably baggage and cargo tractors and belt loaders. Furthermore, airlines and





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airports have partnered to provide continued gate electrification at passenger terminals to significantly reduce the use of diesel-powered GPUs. As time moves forward, airlines expect to continue to increase the presence and use of electric GSE consistent with the existing procedures and plans and the airport's MOU, to further reduce emissions and meet ever-tightening regulatory requirements.

2.2 Progress to Date

In February 2020, the City completed installation of electric GSE charging stations at all 11 passenger aircraft parking positions at LGB. The GSE electric charging project also included replacement of five aging and inefficient charging units. At this time, electric GSE charging stations are operational at the passenger aircraft parking positions and at several GSE storage and staging locations around the LGB terminal. Based on current assessments, LGB infrastructure is able support GSE electrical demands for the airlines and third parties. We will remain in communication with airlines and third party GSE operators to encourage the continued conversion of GSE.

In early 2020, the Airport worked with airlines and GSE operators at each airport in the District to begin planning for implementation of the MOU between SCAQMD and each airport. The airports understand that the airlines have been planning for and taking the following steps:

- Assessment of the GSE fleet at each airport
 - Evaluation of GSE status and identification of equipment that may need to be replaced
 - Key factors: age, performance, historical trends
- Evaluation of available cleaner burning and electric GSE
 - Communication with vendors
- Budget planning for future GSE capital expenditures for replacements
 - Economic projections, coordination with airports on infrastructure
 - Grants and economic incentives





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**Long Beach Airport
SCAQMD MOU Interim Update Report
January 4, 2021**

Attachment 2 – GSE Data Collection Form



