

November 1, 2019

VIA ELECTRONIC MAIL

Kate Gordon
Director
Office of Planning and Research
1400 10th Street
Sacramento, CA 95814

Re: Clarifications Regarding Oakland A's AB 734 Application

Dear Director Gordon:

This firm represents the Oakland Athletics (the "Oakland A's"). This letter clarifies, at the request of the California Air Resources Board ("CARB"), certain aspects of the Oakland A's Application and Supplemental Information for the proposed ballpark and mixed-use development at Howard Terminal (the "Howard Terminal Project") under AB 734 (collectively, the "AB 734 Application").

1. Timing.

First, we address the seeming confusion about the temporal status of applications under AB 734 and similar laws (such as AB 900) at the time the Governor certifies the applications as qualifying for expedited judicial review under those statutes. Because the core purpose of AB 734 and AB 900 is to provide a mechanism for expedited judicial review of challenges to the project approvals and analysis under the California Environmental Quality Act (CEQA) of qualifying projects, the Governor's determination regarding the qualification for expedited review inevitably occurs before completion of the CEQA review or the approval or construction of the projects which are the subject of applications under those statutes. The Governor's determination, therefore, is based on evidence which, in light of the timing, invariably includes projections of future circumstances such as projected emissions, offsets or vehicle trip reductions. Certifications under AB 734 or AB 900 are issued based on those projections if the projections and methodology demonstrate that the projects can and will comply with the requirements of the statutes in the future. Of necessity, the certifications are not based on a determination that the projects are already constructed and have complied with the respective statute's requirements as a retrospective determination. The AB 734 Application provides both the evidence that the proposed project can meet the requirements of AB 734 and a commitment from the lead agency to enforce all the obligations of AB 734. As

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in comparable AB 900 projects, the AB 734 certification process establishes the framework by which the lead agency will monitor and enforce the statute's obligations if and when a certified project is approved and constructed. The monitoring and enforcement occurs as any certified project is constructed, based on contemporaneous actual measurements and reflecting the final project approvals. In the case of the proposed Howard Terminal Project, the final project approvals will include any measures or conditions imposed by the Port and the City in their respective discretion and the monitoring and enforcement will reflect the final approved Project and all its conditions, including the impact (if any) of those conditions, such as seaport compatibility measures. The AB 734 Application demonstrates that the Howard Terminal Project can comply with AB 734's requirements and the City and Port of Oakland have committed to enforcing all the obligations of AB 734 on the Howard Terminal Project thereby demonstrating that the Howard Terminal Project, if approved, will comply. We would also note that we have included with this letter as Attachment 1 a brief clarification of how the Howard Terminal Project can achieve the 50% local offset requirement.

2. Future Activities at the Coliseum.

We wish to provide clarification about the assumptions pertaining to the existing activities at the Oakland Coliseum. As explained in the AB 734 Application, the Oakland A's are not seeking a credit for any aspects of the current operations at the Coliseum (i.e. football games, concerts or other non-baseball events) other than the relocation of the existing baseball games to the Howard Terminal site. However, we understand the issue of potential future use of the Coliseum requires some further clarification. As you know, the Oakland A's are proposing to program additional events at the new ballpark and related entertainment venue at Howard Terminal, and these events are included in the AB 734 analysis. In addition, the new state of the art Chase Center arena just opened in San Francisco and in addition to serving as the home court for the Golden State Warriors NBA team, will host major concerts, events and family shows throughout the year. Additionally, the Oakland Arena (formerly Oracle Arena) may continue to host concerts and other events. Thus, in the submarket of Oakland and San Francisco, the Oakland Coliseum (if retained, which is uncertain at this time) would be competing with a number of venues, all of which are in better physical condition than the Coliseum, which has not had a major infusion of capital or improvements in many years. The Coliseum will have to compete with the existing Oakland (formerly Oracle) arena (which now has an additional 40 plus number of nights to fill to replace the Warriors' games), the new state of the art Chase Center, the existing Oracle (formerly AT&T) ballpark in San Francisco (home field of the San Francisco Giants), the new state of the art Howard Terminal ballpark and entertainment venue, not to mention the major outdoor concerts programmed in Golden Gate Park in San Francisco, such as Outside Lands and Hardly Strictly Bluegrass. If the Coliseum is retained, in addition to the 81 annual MLB games it must replace, there will be 9 additional free days after the Oakland Raiders move to Las Vegas, leaving no less than 90 additional days

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and nights to fill. Both the NFL and MLB are regulated industries and the NFL owners recently voted to allow the Raiders to relocate to Las Vegas, and the Oakland area is the geographic MLB territory of the Oakland A's. It is therefore highly unlikely that any major league team will relocate to the Coliseum and support the significant reinvestment or the construction of a new stadium at the Coliseum that would be necessary for the Coliseum to effectively divert concerts or events of any size to the Coliseum in the future. Further, a review of the number of concerts and other events held at the Coliseum in recent years shows that very few concerts are booked at the stadium now, even before the opening of the new Chase Center or the proposed new venues at Howard Terminal. Since the year 2006, only 9 concert events have occurred at the Coliseum, two of which were music events that occurred in the parking lot, rather than in the stadium itself. In addition, we understand that the Coliseum has historically hosted two monster truck and one motocross events annually. This year, however, there will be two monster truck events and two motocross events. Please see Attachment 2 to this letter. Further, without an anchor tenant to support a refurbishment or capital investment, it is unclear whether the facility would be maintained.

In summary, the Bay Area is saturated with state of the art entertainment venues and the Oakland Coliseum is not a competitive option for performers coming to the Bay Area, as evidenced by the extremely low number of concerts held at the Coliseum in the last 13 years. Additionally, we note the fact that the Coliseum already has a significant number of non-event days that could conceivably be booked by a performer but in fact go unused.

3. Length of the Howard Terminal Ballpark Lease.

We wish to clarify why the current proposal for the lease term at Howard Terminal is for a sixty-six (66) year lease but the operational life assumption for proposed improvements is 30 years in length. Both the Charter of the City of Oakland and the state legislative trust grant currently limit the lease terms for trust properties to sixty-six years. Consistent with AB 900 precedent and best practices established in the air quality and greenhouse gas analysis industry, the AB 734 analysis contemplates a 30 year operational life for the new ballpark. As you know, most AB 900 projects involve projects proposed to be constructed on land owned by the project applicant. Although fee ownership represents a perpetual relationship to the land, in those approved AB 900 applications, the assumed operational life of the proposed improvements to be constructed on the land was 30 years. The same 30 year operational life assumption for the improvements is proposed in the AB 734 Application, both as to improvements proposed for land to be held in fee title and those to be held under a 66 year ground lease. A list of approved AB 900 projects assuming a 30 year operational life of the improvements is attached as Attachment 3 to this letter.

4. Truck Delay Analysis.

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We wish to provide further clarification about the potential delays (and therefore potential additional emissions due to delays) from the relocation of trucks from Howard Terminal to other locations. Truck delay and emissions are already included in the AB 734 analysis but please see Attachment 4 for further clarification.

5. The Oakland Power Plant Variant.

We wish to provide further clarification regarding the Oakland Power Plan (“OPP”) Variant. In addition, the Comment letter from PMSA on the Oakland A’s Supplemental Application challenges the OPP analysis and makes several incorrect assertions about the status of the power plant and its future. Attached as Attachment 5 to this letter is a letter from Vistra Power Company (“Vistra”) clarifying the status of the OPP and the proposed transaction between the Oakland A’s and Vistra. To briefly address the current status of the plant, PMSA claims that the power generating components of the jet-fuel powered OPP “have already been taken off-line.” This statement is incorrect. As described in the attached letter from Vistra, the plant continues to operate and generate power and the California ISO just renewed the Reliability Must Run (“RMR”) Agreement for the plant through the end of 2020, a copy of which is attached to the Vistra letter.

The attached letter from Vistra also explains that while there have been aspirations to shut down the plant in the past, none have come to fruition because it was not be economically viable to do so until now. The letter also sets out the timing of the negotiations between the A’s and Vistra, which was in the planning stages before Vistra responded to the Oakland Clean Energy Initiative RFO. The letter makes it clear that the proposed transaction with the Oakland A’s, combined with the ECBE contract have helped secure sufficient demand to make the conversion feasible. As confirmed by Vistra, no other party will seek or obtain GHG credits for the conversion other than the Oakland A’s. Please note that Attachment 1 includes a refinement of the calculations for the OPP Variant.

Thank you for the opportunity to provide these clarifications.

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Sincerely,

GIBSON, DUNN & CRUTCHER LLP



Mary G. Murphy

MGM/nf

ATTACHMENT 1

MEMORANDUM

To: **Shannon Hatcher**
California Air Resources Board
Shannon.Hatcher@arb.ca.gov

From: **Michael Keinath**

Subject: **Updates to Oakland Power Plant Methodology, EV Charging Inputs, and Additional Quantified Reductions for the Oakland Waterfront Ballpark District Project**

INTRODUCTION

The purpose of this document is to provide additional background and references supporting the Oakland Power Plant (OPP) variant for the Oakland Waterfront Ballpark District Project ("Project") and to outline additional reductions to be taken to achieve the 50% local reduction measure. Prior to this update, implementation of the OPP variant would surpass the 50% local reduction required by Assembly Bill 734 (AB734). In order to ensure that this reduction measure could be achieved without OPP, we have provided clarification of Project reductions that could be implemented to allow the Project to meet the 50% local reduction measure if the OPP variant is not implemented. We have also clarified how more vehicle (EV) chargers lead to GHG reductions and incorporated minor updates to construction. Unless specified below, methodology and assumptions in these updates are consistent with the previous AB734 application update submitted on August 28, 2019. Only tables that have been added and key summary tables with values that have updated since the previous application are included. Calculations provided in the application demonstrate methodology but may be updated with best available and current data at the time of Project implementation.

OPP METHODOLOGY

The OPP variant would involve replacing the three existing jet-fueled turbines with a 90 MW battery energy storage system (ESS) with up to four hours of storage. The updated approach to estimate avoided greenhouse gas (GHG) emissions resulting from the OPP variant comprises two components: (1) a direct reduction in GHG emissions from closure of the existing jet-fueled turbines and replacement with cleaner grid energy; and (2) avoided indirect GHG emissions from the ramping down of fossil-fueled plants that would have been required to regulate and condition the grid, a function now served by the battery ESS.

- **Avoided Direct Emissions:** The previous application assumed that energy stored in the battery ESS would be supplied at the grid-average intensity. Based on conversations with ARB and the OPP operator, we understand that one-third of the energy supplied to the battery ESS is guaranteed to be from zero-carbon sources with the remaining two-thirds from the grid.
- **Avoided Indirect Emissions:** The methodology to quantify the magnitude of fossil-fueled plant ramp-down has been updated to be based on solar and wind power curtailment data from the California Independent System Operator (CAISO) to better reflect how the ESS will allow for the deployment of more renewable sources of power. The calculation assumes that the battery storage system stores electricity from renewable power sources such as solar and wind power generation during off-peak periods, based on average renewable curtailment rates.¹ The ESS is assumed to be charged to its maximum capacity (270 MWh/day) during peak curtailment months and proportionally lower charge rates during other months of the year. This is a conservative estimate as it is based on historical curtailment. As California increases solar and wind generation capacity, the battery energy

¹ Monthly curtailment data for May 2014 through August 2019 available online at: <http://www.caiso.com/informed/Pages/ManagingOversupply.aspx> (Accessed: September 2019).

storage system could potentially be fully charged using renewable sources all year, even in the historically low-curtailment months.

UPDATES TO EMISSION INVENTORY INPUTS

Only inputs to EV charging and construction were updated in this analysis.

- **EV Charging Assumptions:** Previously, it was assumed that 10% of parking spaces across all land uses would have EV chargers. In order to achieve the 50% local reduction measure without the OPP Variant, the number of on-site EV charging-capable parking spaces could be increased in specific land uses which were previously charger-limited at 10%, resulting in the following breakdown:
 - Residential and Hotel: 15% of spaces
 - Office: 10% of spaces
 - Retail and Restaurant: 15% of spaces
 - Ballpark: 30% of spaces
- **Construction Assumptions:** In this update, minor updates to construction GHG emissions include:
 - Emission factors from water trucks exhaust were updated to use EMFAC2017 instead of OFFROAD2011;
 - Cranes used in the mitigated construction inventory are assumed to have Tier 3 engines; and
 - Emissions were estimated from electricity used by electric equipment and by water pumping.Corresponding updates were made for the variant construction projects. Construction-related tables have been updated accordingly.

ADDITIONAL REDUCTION MEASURES

In addition to the additional EV chargers and traffic reductions due to TDM and TMP, there are a variety of potential additional measures that could be considered to achieve the 50% local reduction for the Project. Ramboll has quantified several of these as part of the path to 50% (without the OPP Variant).

- **Reduced Generator Operation:** This analysis updated the previous assumption of 50 hours per year of routine maintenance of the Project generators to 20 hours of operation per year.
- **Installation of Solar PV Panels on 50% of Rooftop Areas:** This analysis analyzed potential emissions reductions from on-site solar photovoltaic (PV) energy on 50% of the available rooftops of the ancillary buildings. Annual electricity generated is calculated using the National Renewable Energy Laboratory's PVWatts®, version 6.² Details are shown in new **Table OP-19**.
- **No Natural Gas for 50% of Residential Units:** This analysis estimates the reduction in emissions from natural gas consumption by assuming that natural gas usage from 50% of the Project residential units is replaced by grid electricity, as shown in new **Table OP-20**. It is assumed that the all-electric residences have a 40% higher kilowatt-hour usage compared to buildings with natural gas domestic hot water, space heating and appliances, as estimated by Meyers+ Engineers.

RESULTS SUMMARY

A summary of the Proposed Project GHG emissions (disaggregated between residential and nonresidential land uses, and projected year-by-year out to 30 years following a net increase in GHG emissions) and avoided GHG emissions with additional reductions is presented in new **Table 13**, representing a potential path to 50% local reduction without reliance on the OPP Variant, as is required for AB734 CEQA streamlining. As shown, when accounting for Project features and GHG reduction measures that are currently known and quantifiable, the total Local GHG Reduction over the 30-year Project lifetime equals 50% of the net new nonresidential emissions, without the potential reductions of the OPP and Gondola Variants. This analysis still does not include anticipated additional reductions from Project features associated with LEED Gold design, which would allow the Project to achieve further GHG reductions locally. In addition, the OPP and Gondola Variants, if implemented, would result in Local GHG reductions well in excess of the 50% requirement.

² PVWatts, using default assumptions for Oakland, California. Available online at <https://pvwatts.nrel.gov/pvwatts.php>

**Table 1. Emissions Reductions and Offsets Summary at Full Buildout (2028)
Oakland Waterfront Ballpark District Project
Oakland, California**

Category	CO ₂ e Emissions (MT/year)			
	Ballpark	Ancillary - Nonresidential	Ancillary - Residential	Total
Existing Conditions Emissions (2020)	-10,600	-	-	-10,600
Project 1.0 Emissions at Full Buildout (without Project Design Features and Local Reduction Measures)	10,344	39,490	14,556	64,390
Net New Project Emissions (Project 1.0 - Existing)	-256	39,490	14,556	53,790
Net New Project Nonresidential Emissions	39,234		0	39,234
Reductions <i>Needed</i> from Local Measures (50% of Net New Nonresidential Emissions) ¹	19,617		0	19,617
Project 2.0 Emissions at Full Buildout (with Project Design Features and Local Reduction Measures) ²	7,271	30,333	10,907	48,510
Reductions Achieved through Local Measures (Project 2.0 - Project 1.0)	-3,073	-9,157	-3,650	-15,880
Achieved Local Reductions as a Percent of Net New Nonresidential Emissions	40%			
Additional Reductions Achieved through Offset Credits, Mitigations, or Other Onsite/Offsite Projects to Reach Net Zero Target	-37,910			

Notes:

- ¹ Per AB 734, at least 50% of the nonresidential (ballpark + nonresidential ancillary) emissions must be reduced by local measures.
- ² Local reduction measures include TDM and TMP measures as well as EV chargers.

Abbreviations:

CO₂e - carbon dioxide equivalents
MT - metric ton

**Table 6. Construction GHG Emissions
Oakland Waterfront Ballpark District Project
Oakland, California**

Year	CO ₂ e Emissions (MT/year) ¹				
	Diesel Off-Road Equipment ^{2,3}	Electric Off-Road Equipment ²	Indirect Emissions from Water Use ⁴	On-Road Vehicles ⁵	Total
2020	282	0	14	36	333
2021	2,182	14	70	3,314	5,580
2022	2,664	58	12	3,205	5,939
2023	1,739	20	17	1,768	3,543
2024	1,872	0	39	1,662	3,572
2025	1,836	123	17	1,818	3,794
2026	2,696	160	12	1,893	4,760
2027	1,781	36	6.2	1,232	3,056
Total GHG Emissions from Construction (MT)					30,577

Notes:

- Construction inputs were provided by the Project sponsor and Devcon Construction Inc. based on Project-specific assumptions.
- Construction equipment list, fuel, size in HP or kW, start and end dates, hours of operation per day, and utilization were provided by the Project sponsor. Utilization refers to the percentage of the phase that equipment is expected to be in use. Equipment load factors were estimated from the Air Resource Board's OFFROAD database. Emission factors were from OFFROAD2011 for diesel equipment and PG&E for electric equipment.

$$\text{Emissions} = \sum (N * P * LF * Hr * U * EF)$$

N: number of Equipment Pieces
P: equipment power, either horsepower or kilowatts (OFFROAD2011)
LF: Load Factor
U: Utilization
EF: Emissions Factor

The greenhouse gas emission factor calculations for electric equipment calculations are shown in Table OP-8. For CO₂, the 2020 emission factor was conservatively used (297 lb/Mwh) for all construction years. For CH₄ and N₂O, the CalEEMod default factors were used (0.029, and 0.00617 lb/MWh, respectively).

- Emissions from water trucks were calculated using EMFAC2017 emission factors as they are on-road trucks. Emissions from water trucks were calculated using the following assumptions:
 - EMFAC2017 was run in emissions rates mode and output by vehicle class and fuel for Alameda County and averaged across model years for EMFAC 2007 vehicle classes for a specific fuel type.
 - Hours are calculated as number of equipment * utilization percent * number of construction days * hours/day * load factor.
 - Starts are calculated as hours * 1 start/hour.
 - Miles are calculated as hours * 10 miles per hour.
 - Idle-hrs are calculated as starts * 1 idle/start * 2 minutes/idle.
 - Number of water trucks and schedule are provided in the off-road equipment list table.
 - Water trucks are assumed to be diesel fueled and similar to medium heavy duty trucks (MHDt).
 - Idling is restricted to 2 minutes/idle.
 - Water trucks start once per hour.
- Indirect electricity emissions from water use in the water trucks were calculated using CalEEMod methodology for electricity intensity and PG&E's greenhouse gas emission factor. Total water use was based on the total acreage of the phase area and the water usage rate provided by Devcon. Electric intensity factors were taken from Table 9.2 in Appendix D of the CalEEMod User's Guide as the sum of supply water, treat water and distribute water electric intensity factors. Since the water use reported here is only for fugitive dust control, indoor water use-related emissions and wastewater treatment-related emissions are not estimated here. Greenhouse gas emission factor calculations are shown in Table OP-8. For CO₂, the 2020 emission factor was conservatively used (297 lb/MWh) for all construction years. For CH₄ and N₂O, the CalEEMod default factors were used (0.029, and 0.00617 lb/MWh, respectively).
- CalEEMod default fleet mixes were used for Worker (LD_Mix), Vendor (MHDT/HHDT), and Hauling (HHDT) trips. LD_Mix was assumed to be 100% gasoline vehicles and MHDT/HHDT and HHDT were assumed to be 100% diesel vehicles. For Worker, Vendor, and Hauling emission factors, EMFAC2017 was run for each year of construction. Annual number of trips and VMT were output by vehicle class and fuel for Alameda County and averaged across model years for EMFAC 2007 vehicle classes for a specific fuel type. From these, emission factors were calculated by dividing the emissions by either the number of trips or the VMT, where appropriate. Emission factors were calculated using the equations below:
$$E_{g/mi} = E / \text{VMT}$$

$$E_{g/trip} = E / T$$

Where E_{g/mi} is the emission factor in g/mi, E_{g/trip} is the emission factor in g/trip, VMT is annual vehicle miles traveled and T is the annual number of trips.
- Global warming potentials used in the calculation of CO₂e are 1, 25 and 298 for CO₂, CH₄ and N₂O, respectively, and are from IPCC AR4.

Abbreviations:

CO₂e - carbon dioxide equivalents
GHG - greenhouse gas
MT - metric ton

**Table 8. Project 1.0 Operational Emissions for Full Buildout Year (2028)
Oakland Waterfront Ballpark District Project
Oakland, California**

Category	Project CO ₂ e Emissions (MT/year)		
	Ballpark	Ancillary - Nonresidential	Ancillary - Residential
Mobile	7,728	32,794	10,694
Electricity	1,204	3,098	1,138
Natural Gas	253	2,218	1,396
Water and Wastewater	190	353	550
Solid Waste	945	956	694
Area Sources	0.06	0.17	37
Stationary Sources ¹	21	47	47
EV Charging	--	--	--
Transportation Refrigeration Units ²	0.41	0.05	0
Port Truck Idling Delays ³	2.1	23	--
Total	10,344	39,490	14,556
	64,390		

Notes:

- ¹ Stationary source emissions from emergency generators are not associated with particular types of land uses, but rather mixed-use buildings on the Project site. For the purpose of this preliminary estimate, stationary source emissions are equally split between the Ancillary - Nonresidential and Ancillary - Residential totals.
- ² Transportation Refrigeration Units (TRU) emissions account for emissions from the diesel-powered electrical generation units used to refrigerate or heat perishable goods transported by trucks.
- ³ Traffic from the Project is estimated to contribute to truck delays in the surrounding areas, which results in truck idling emissions. Data was provided from Fehr & Peers for ballpark traffic-caused delays and ancillary development traffic-caused delays. However, no information was provided for the breakdown between non-residential ancillary and residential ancillary, so all emissions were considered to be from non-residential for this analysis.

Abbreviations:

CO₂e - carbon dioxide equivalents
MT - metric ton

**Table 9. Project 2.0 Operational Emissions for Full Buildout Year (2028)
Oakland Waterfront Ballpark District Project
Oakland, California**

Category	Project CO ₂ e Emissions (MT/year)		
	Ballpark	Ancillary - Nonresidential	Ancillary - Residential
Mobile	5,829	26,658	8,015
Electricity	1,204	3,098	1,138
Natural Gas	253	2,218	1,396
Water and Wastewater	190	353	550
Solid Waste	945	956	694
Area Sources	0.06	0.17	37
Stationary Sources ¹	21	47	47
EV Charging ²	-1,174	-3,022	-971
Transportation Refrigeration Units ³	0.41	0.05	0
Port Truck Idling Delays ⁴	2.1	23	--
Total	7,271	30,333	10,907
	48,510		

Notes:

- Stationary source emissions from emergency generators are not associated with particular types of land uses, but rather mixed-use buildings on the Project site. For the purpose of this preliminary estimate, stationary source emissions are equally split between the Ancillary - Nonresidential and Ancillary - Residential totals.
- This analysis assumes that electric vehicle chargers will be installed for 10% of all parking spaces.
- Transportation Refrigeration Units (TRU) emissions account for emissions from the diesel-powered electrical generation units used to refrigerate or heat perishable goods transported by trucks.
- Traffic from the Project is estimated to contribute to truck delays in the surrounding areas, which results in truck idling emissions. Data was provided from Fehr & Peers for ballpark traffic-caused delays and ancillary development traffic-caused delays. However, no information was provided for the breakdown between non-residential ancillary and residential ancillary, so all emissions were considered to be from non-residential for this analysis.

Abbreviations:

CO₂e - carbon dioxide equivalents
 EV - electric vehicle
 MT - metric ton

**Table 10. Year-by-Year Comparison of GHG Emissions Without Additional Reductions
Oakland Waterfront Ballpark District Project
Oakland, California**

Year ¹	Existing Conditions Emissions	Project 1.0 Operational Emissions ²	Project 2.0 Operational Emissions ²	Construction Emissions	Net Project Emissions to Reduce or Offset	Local Reductions (TMP + TDM + EV Charging)	% Local Reduction Measures	Remaining Emissions ³
	MT CO ₂ e/year						%	MT CO ₂ e/year
2020	0	0	0	333	333	0	--	333
2021	0	0	0	5,580	5,580	0	--	5,580
2022	0	0	0	5,939	5,939	0	--	5,939
2023	10,600	12,889	10,504	3,543	5,833	2,385	116%	3,448
2024	10,600	24,490	19,578	3,572	17,462	4,912	45%	12,550
2025	10,600	23,786	19,030	3,794	16,980	4,756	46%	12,224
2026	10,600	23,149	18,529	4,760	17,309	4,619	47%	12,689
2027	10,600	36,832	29,951	3,056	29,289	6,882	35%	22,407
2028	10,600	64,390	48,510	0	53,790	15,880	40%	37,910
2029	10,600	62,853	47,335	0	52,253	15,518	41%	36,735
2030	10,600	61,485	46,277	0	50,886	15,208	41%	35,677
2031	10,600	60,233	45,297	0	49,633	14,936	42%	34,697
2032	10,600	59,099	44,397	0	48,499	14,702	42%	33,797
2033	10,600	58,066	43,564	0	47,467	14,502	42%	32,965
2034	10,600	57,120	42,789	0	46,520	14,331	43%	32,189
2035	10,600	56,256	42,068	0	45,656	14,188	43%	31,468
2036	10,600	55,466	41,397	0	44,867	14,069	44%	30,797
2037	10,600	54,741	40,768	0	44,141	13,973	44%	30,168
2038	10,600	54,077	40,181	0	43,477	13,896	45%	29,581
2039	10,600	53,469	39,631	0	42,869	13,838	45%	29,031
2040	10,600	52,909	39,113	0	42,309	13,796	46%	28,513
2041	10,600	52,387	38,621	0	41,787	13,766	46%	28,021
2042	10,600	51,909	38,159	0	41,309	13,749	47%	27,559
2043	10,600	51,461	37,718	0	40,861	13,743	47%	27,118
2044	10,600	51,035	37,292	0	40,436	13,743	48%	26,692
2045	10,600	50,631	36,880	0	40,031	13,751	48%	26,280
2046	10,600	50,567	36,838	0	39,967	13,728	48%	26,238
2047	10,600	50,516	36,806	0	39,916	13,711	48%	26,206
2048	10,600	50,477	36,780	0	39,877	13,697	48%	26,180
2049	10,600	50,450	36,764	0	39,850	13,686	48%	26,164
2050	10,600	50,468	36,782	0	39,868	13,686	48%	26,182
2051	10,600	50,468	36,782	0	39,868	13,686	48%	26,182
2052	10,600	50,468	36,782	0	39,868	13,686	48%	26,182

**Table 10. Year-by-Year Comparison of GHG Emissions Without Additional Reductions
Oakland Waterfront Ballpark District Project
Oakland, California**

Year ¹	Existing Conditions Emissions	Project 1.0 Operational Emissions ²	Project 2.0 Operational Emissions ²	Construction Emissions	Net Project Emissions to Reduce or Offset	Local Reductions (TMP + TDM + EV Charging)	% Local Reduction Measures	Remaining Emissions ³
	MT CO ₂ e/year						%	MT CO ₂ e/year
2053	0	42,462	30,370	0	42,462	12,092	39%	30,370
2054	0	39,040	27,348	0	39,040	11,692	43%	27,348
2055	0	39,037	27,345	0	39,037	11,692	43%	27,345
2056	0	38,992	27,312	0	38,992	11,679	43%	27,312
2057	0	4,971	2,798	0	4,971	2,173	44%	2,798
Total Gross Emissions (MT)	317,998	1,646,649	1,220,299	30,577	1,359,228	426,351	44.6%	932,878

Notes:

¹ Emissions decrease over time due to transportation and electricity (for both building energy use and water treatment and distribution) becoming cleaner. A linear interpolation is used to take into account decrease in electricity intensity factor due to Renewable Portfolio Standards. The decrease in vehicle emission factors over time is based on Alameda County fleet-average emission factors from 2020-2050. The estimate assumes no change after 2050, since EMFAC2017 does not project past 2050.

² Emissions assume all buildings become operational as soon as Phase is constructed, based on percent of operational land uses by Phase and percent of operation per year. The first calendar year is adjusted for partial operation based on start date and the last calendar year is adjusted for partial operation such that total lifetime for each land use sums to 30 years.

³ The analysis presented here does not include anticipated additional reductions from Project features associated with LEED Gold design or from local air quality mitigation measures with GHG co-benefits. The Project is committed to achieving LEED Gold Standard, which requires projects to obtain points in the areas of Location & Transportation, Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality, Innovation, and Regional Priority. Many of these measures, such as optimizing energy performance, demand response, and renewable energy production, would allow the Project to achieve further GHG reductions locally that are not captured in this analysis.

Abbreviations:

- CO₂e - carbon dioxide equivalents
- MT - metric ton
- NPV - net present value
- yr - year

**Table 11. Project Variant Emissions
Oakland Waterfront Ballpark District Project
Oakland, California**

Emissions Source	GHG Emissions
	[MT/year] CO ₂ e
Aerial Gondola	
Construction Emissions	848
Energy Use Emissions	478
Mobile Emission Reductions (due to VMT Reductions)	-4,192
Total Emissions	-2,866
Oakland Power Plant	
Construction Emissions	219
Direct Energy Emission Avoided	-8,076
Indirect Energy Emission Avoided	-9,129
Total Emissions	-16,987
Total Emission Reductions	-19,853

Note:

¹. GHG emissions were only calculated for the Aerial Gondola and Oakland Power Plant variants, since these are expected to potentially have significant impacts on the GHG analysis. All other variant projects are anticipated to have minimal GHG impacts or reductions.

Abbreviations:

- CO₂e - carbon dioxide equivalent
- GHG - greenhouse gas
- MT - metric ton
- VMT - vehicle miles traveled

**Table 12. Year-by-Year Comparison of GHG Emissions With Oakland Power Plant
Oakland Waterfront Ballpark District Project
Oakland, California**

Year ¹	Existing Conditions Emissions	Project 1.0 Operational Emissions ²	Project 2.0 Operational Emissions ²	Construction Emissions	Net Project Emissions to Reduce or Offset	Reduction from Oakland Power Plant ³	Reduction from TDM, TMP, EV Charging	Local Reductions (TMP + TDM + EV Charging + Oakland Power Plant)	% Local Reduction Measures	Remaining Emissions ⁴
	MT CO ₂ e/year								%	MT CO ₂ e/year
2020	0	0	0	333	333	0	0	0	--	333
2021	0	0	0	5,580	5,580	0	0	0	--	5,580
2022	0	0	0	5,939	5,939	-185	0	-185	--	6,124
2023	10,600	12,889	10,504	3,543	5,833	-34	2,385	2,351	115%	3,482
2024	10,600	24,490	19,578	3,572	17,462	16,775	4,912	21,687	197%	-4,224
2025	10,600	23,786	19,030	3,794	16,980	16,819	4,756	21,576	208%	-4,596
2026	10,600	23,149	18,529	4,760	17,309	16,864	4,619	21,483	219%	-4,174
2027	10,600	36,832	29,951	3,056	29,289	16,908	6,882	23,790	122%	5,499
2028	10,600	64,390	48,510	0	53,790	16,953	15,880	32,833	84%	20,957
2029	10,600	62,853	47,335	0	52,253	16,997	15,518	32,516	85%	19,737
2030	10,600	61,485	46,277	0	50,886	17,042	15,208	32,250	87%	18,635
2031	10,600	60,233	45,297	0	49,633	17,086	14,936	32,022	89%	17,612
2032	10,600	59,099	44,397	0	48,499	17,130	14,702	31,832	91%	16,667
2033	10,600	58,066	43,564	0	47,467	17,174	14,502	31,676	92%	15,791
2034	10,600	57,120	42,789	0	46,520	17,218	14,331	31,549	94%	14,971
2035	10,600	56,256	42,068	0	45,656	17,262	14,188	31,450	96%	14,206
2036	10,600	55,466	41,397	0	44,867	17,306	14,069	31,375	97%	13,491
2037	10,600	54,741	40,768	0	44,141	17,350	13,973	31,322	99%	12,818
2038	10,600	54,077	40,181	0	43,477	17,394	13,896	31,290	101%	12,187
2039	10,600	53,469	39,631	0	42,869	17,438	13,838	31,276	102%	11,593
2040	10,600	52,909	39,113	0	42,309	17,482	13,796	31,277	104%	11,032
2041	10,600	52,387	38,621	0	41,787	17,526	13,766	31,292	105%	10,495
2042	10,600	51,909	38,159	0	41,309	17,569	13,749	31,319	106%	9,990
2043	10,600	51,461	37,718	0	40,861	17,613	13,743	31,356	108%	9,505
2044	10,600	51,035	37,292	0	40,436	17,657	13,743	31,401	109%	9,035
2045	10,600	50,631	36,880	0	40,031	17,701	13,751	31,452	111%	8,579
2046	10,600	50,567	36,838	0	39,967	17,701	13,728	31,430	111%	8,537
2047	10,600	50,516	36,806	0	39,916	17,701	13,711	31,412	111%	8,504
2048	10,600	50,477	36,780	0	39,877	17,701	13,697	31,398	111%	8,479
2049	10,600	50,450	36,764	0	39,850	17,701	13,686	31,387	111%	8,463
2050	10,600	50,468	36,782	0	39,868	17,701	13,686	31,387	111%	8,481

**Table 12. Year-by-Year Comparison of GHG Emissions With Oakland Power Plant
Oakland Waterfront Ballpark District Project
Oakland, California**

Year ¹	Existing Conditions Emissions	Project 1.0 Operational Emissions ²	Project 2.0 Operational Emissions ²	Construction Emissions	Net Project Emissions to Reduce or Offset	Reduction from Oakland Power Plant ³	Reduction from TDM, TMP, EV Charging	Local Reductions (TMP + TDM + EV Charging + Oakland Power Plant)	% Local Reduction Measures	Remaining Emissions ⁴
	MT CO ₂ e/year								%	MT CO ₂ e/year
2051	10,600	50,468	36,782	0	39,868	17,701	13,686	31,387	111%	8,481
2052	10,600	50,468	36,782	0	39,868	17,701	13,686	31,387	111%	8,481
2053	0	42,462	30,370	0	42,462	17,701	12,092	29,793	97%	12,669
2054	0	39,040	27,348	0	39,040	0	11,692	11,692	43%	27,348
2055	0	39,037	27,345	0	39,037	0	11,692	11,692	43%	27,345
2056	0	38,992	27,312	0	38,992	0	11,679	11,679	43%	27,312
2057	0	4,971	2,798	0	4,971	0	2,173	2,173	44%	2798
Total Gross Emissions (MT)	317,998	1,646,649	1,220,299	30,577	1,359,228	520,655	426,351	947,006	99%	412,222

Notes:

- ¹ Emissions decrease over time due to transportation and electricity (for both building energy use and water treatment and distribution) becoming cleaner. A linear interpolation is used to take into account decrease in electricity intensity factor due to Renewable Portfolio Standards. The decrease in vehicle emission factors over time is based on Alameda County fleet-average emission factors from 2020-2050. The estimate assumes no change after 2050, since EMFAC2017 does not project past 2050.
- ² Emissions assume all buildings become operational as soon as Phase is constructed, based on percent of operational land uses by Phase and percent of operation per year. The first calendar year is adjusted for partial operation based on start date and the last calendar year is adjusted for partial operation such that total lifetime for each land use sums to 30 years. A 30 year operation is also assumed for the Oakland Power Plant.
- ³ Construction emissions associated with the conversion of the Oakland Power Plant are shown in 2022 and 2023. From 2024 to 2053, the emissions reduction from the Oakland Power Plant are presented each year as the combination of the direct emissions avoided (estimated from the shutdown of the peaker plant) and the indirect emissions avoided (estimated from the reduced need for fossil fueled plants due to increased grid stability provided by the battery storage system).
- ⁴ The analysis presented here does not include anticipated additional reductions from Project features associated with LEED Gold design or from local air quality mitigation measures with GHG co-benefits. The Project is committed to achieving LEED Gold Standard, which requires projects to obtain points in the areas of Location & Transportation, Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality, Innovation, and Regional Priority. Many of these measures, such as optimizing energy performance, demand response, and renewable energy production, would allow the Project to achieve further GHG reductions locally that are not captured in this analysis.

Abbreviations:

CO₂e - carbon dioxide equivalents
 MT - metric ton
 NPV - net present value
 yr - year

**Table 13. Year-by-Year Comparison of GHG Emissions without Oakland Power Plant
Oakland Waterfront Ballpark District Project
Oakland, California**

Year ¹	Existing Conditions Emissions	Project 1.0 Operational Emissions ²	Project 2.0 Operational Emissions ²	Construction Emissions	Net Project Emissions to Reduce or Offset	Local Reductions (TMP + TDM + EV Charging)	Additional Local Reductions (Solar PV, No Residential NG) ³	% Local Reduction Measures	Remaining Emissions ⁴
	MT CO ₂ e/year							%	MT CO ₂ e/year
2020	0	0	0	333	333	0	0	--	333
2021	0	0	0	5,580	5,580	0	0	--	5,580
2022	0	0	0	5,939	5,939	0	0	--	5,939
2023	10,600	12,889	10,504	3,543	5,833	2,385	33	118%	3,448
2024	10,600	24,490	19,578	3,572	17,462	4,912	402	48%	12,550
2025	10,600	23,786	19,030	3,794	16,980	4,756	395	50%	12,224
2026	10,600	23,149	18,529	4,760	17,309	4,619	388	51%	12,689
2027	10,600	36,832	29,951	3,056	29,289	6,882	906	40%	22,407
2028	10,600	64,390	48,510	0	53,790	15,880	1,940	45%	37,910
2029	10,600	62,853	47,335	0	52,253	15,518	1,908	46%	36,735
2030	10,600	61,485	46,277	0	50,886	15,208	1,876	46%	35,677
2031	10,600	60,233	45,297	0	49,633	14,936	1,844	47%	34,697
2032	10,600	59,099	44,397	0	48,499	14,702	1,813	47%	33,797
2033	10,600	58,066	43,564	0	47,467	14,502	1,781	48%	32,965
2034	10,600	57,120	42,789	0	46,520	14,331	1,750	48%	32,189
2035	10,600	56,256	42,068	0	45,656	14,188	1,718	48%	31,468
2036	10,600	55,466	41,397	0	44,867	14,069	1,687	49%	30,797
2037	10,600	54,741	40,768	0	44,141	13,973	1,655	49%	30,168
2038	10,600	54,077	40,181	0	43,477	13,896	1,624	50%	29,581
2039	10,600	53,469	39,631	0	42,869	13,838	1,592	50%	29,031
2040	10,600	52,909	39,113	0	42,309	13,796	1,561	51%	28,513
2041	10,600	52,387	38,621	0	41,787	13,766	1,529	51%	28,021
2042	10,600	51,909	38,159	0	41,309	13,749	1,498	52%	27,559
2043	10,600	51,461	37,718	0	40,861	13,743	1,466	52%	27,118
2044	10,600	51,035	37,292	0	40,436	13,743	1,434	53%	26,692
2045	10,600	50,631	36,880	0	40,031	13,751	1,403	53%	26,280
2046	10,600	50,567	36,838	0	39,967	13,728	1,403	53%	26,238
2047	10,600	50,516	36,806	0	39,916	13,711	1,403	53%	26,206
2048	10,600	50,477	36,780	0	39,877	13,697	1,403	53%	26,180
2049	10,600	50,450	36,764	0	39,850	13,686	1,403	53%	26,164
2050	10,600	50,468	36,782	0	39,868	13,686	1,403	53%	26,182
2051	10,600	50,468	36,782	0	39,868	13,686	1,403	53%	26,182
2052	10,600	50,468	36,782	0	39,868	13,686	1,403	53%	26,182

**Table 13. Year-by-Year Comparison of GHG Emissions without Oakland Power Plant
Oakland Waterfront Ballpark District Project
Oakland, California**

Year ¹	Existing Conditions Emissions	Project 1.0 Operational Emissions ²	Project 2.0 Operational Emissions ²	Construction Emissions	Net Project Emissions to Reduce or Offset	Local Reductions (TMP + TDM + EV Charging)	Additional Local Reductions (Solar PV, No Residential NG) ³	% Local Reduction Measures	Remaining Emissions ⁴
	MT CO ₂ e/year							%	MT CO ₂ e/year
2053	0	42,462	30,370	0	42,462	12,092	1,383	44%	30,370
2054	0	39,040	27,348	0	39,040	11,692	1,150	47%	27,348
2055	0	39,037	27,345	0	39,037	11,692	1,150	47%	27,345
2056	0	38,992	27,312	0	38,992	11,679	1,150	47%	27,312
2057	0	4,971	2,798	0	4,971	2,173	770	59%	2,798
Total Gross Emissions (MT)	317,998	1,646,649	1,220,299	30,577	1,359,228	426,351	47,625	50%	932,878

Notes:

- ¹ Emissions decrease over time due to transportation and electricity (for both building energy use and water treatment and distribution) becoming cleaner. A linear interpolation is used to take into account decrease in electricity intensity factor due to Renewable Portfolio Standards. The decrease in vehicle emission factors over time is based on Alameda County fleet-average emission factors from 2020-2050. The estimate assumes no change after 2050, since EMFAC2017 does not project past 2050.
- ² Emissions assume all buildings become operational as soon as Phase is constructed, based on percent of operational land uses by Phase and percent of operation per year. The first calendar year is adjusted for partial operation based on start date and the last calendar year is adjusted for partial operation such that total lifetime for each land use sums to 30 years.
- ³ The avoided GHG emissions quantified under Additional Local Reductions show a potential path to the required 50% local reduction under AB734 should the OPP Variant not be implemented. These are not necessarily Project commitments and may not be necessary if the OPP Variant is implemented.
- ⁴ The analysis presented here does not include anticipated additional reductions from Project features associated with LEED Gold design or from local air quality mitigation measures with GHG co-benefits. The Project is committed to achieving LEED Gold Standard, which requires projects to obtain points in the areas of Location & Transportation, Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality, Innovation, and Regional Priority. Many of these measures, such as optimizing energy performance, demand response, and renewable energy production, would allow the Project to achieve further GHG reductions locally that are not captured in this analysis.

Abbreviations:

CO₂e - carbon dioxide equivalents
 MT - metric ton
 NPV - net present value
 yr - year

**Table OP-17B. Indirect Power Plant Green House Gas Emissions
Oakland Waterfront Ballpark District Project
Oakland, California**

Electricity Provided by Battery Storage

Input	Units
90	MW battery capacity ¹
4	hours of maximum storage per day ¹
40%	Annual Average Charge Rate ²
85%	Round Trip Efficiency ³
45,068	MWh/yr Battery Electricity

CO₂e Intensity Factor per Total Non-Renewable Electricity⁴

Input	Units
444	lbs CO ₂ /MWh delivered
0.029	lbs CH ₄ /MWh delivered
0.0062	lbs N ₂ O/MWh delivered
446	lbs CO ₂ e/MWh delivered

Avoided Indirect GHG Emissions from Oakland Power Plant Conversion

Parameter	Average	Units
Indirect GHG Avoided ⁵	9,129	MT CO ₂ e/year

Notes:

- Battery energy storage system specifications are provided by the Project sponsor.
- The annual average charge rate of the battery energy storage system is calculated based on the monthly curtailment of solar and wind renewable power sources from May 2014 through August 2019, as reported by the California Independent System Operator (CAISO 2019). The battery energy storage system is assumed to be fully charged using solar and wind power that would have otherwise been curtailed during peak curtailment months and proportionally lower charge rates during other months of the year. This is a conservative estimate as it is based on historical curtailment. As California increases solar and wind generation capacity, the battery energy storage system could potentially be fully charged even in the historically low-curtailment months.

Monthly curtailment data available online at:

<http://www.caiso.com/informed/Pages/ManagingOversupply.aspx> (Accessed: September 2019).

- The battery round-trip efficiency is the fraction of energy put into the storage that can be retrieved, and is a combination of the charge efficiency and discharge efficiency of the storage bank. More details available at:
https://www.homerenergy.com/products/pro/docs/latest/battery_roundtrip_efficiency.html
- The CO₂ intensity factor presented here is calculated in Table OP-8. The CH₄ and N₂O intensity factors are consistent with the CalEEMod® version 2016.3.2. defaults for PGE.

Notes, Continued:

5. Battery energy storage systems have rapid response times and are more efficient compared to fossil-fueled peaker plants because they can store energy from renewable sources, which are often generated during off-peak demand periods and supply it back to the grid during peak demand periods. Thus, the installation of the energy storage system would result in a ramping down of existing fossil fueled peaker plants and/or eliminate the need for additional fossil fueled peaker plants to provide grid stability. The calculation assumes that the battery storage system is charged from renewable power sources such as solar and wind power generation during off-peak periods, based on average renewable curtailment rates from CAISO in the period from May 2014 through August 2019. The indirect GHG emissions presented here represent the avoided GHG emissions that would not occur across the grid as the battery energy storage system would provide improvements to grid reliability, promote the transition to more renewably sourced electricity, and eliminate the need for additional fossil fueled peaker plant operation.

Abbreviations:

CH₄ - methane

CO₂ - carbon dioxide

CO₂e - carbon dioxide equivalent

GHG - greenhouse gas

kg - kilogram

lb - pound

MT - metric ton

MWh - megawatt-hour

N₂O - nitrous oxide

PGE - Pacific Gas & Electric

**Table OP-18. Power Plant Emissions Reduction
Oakland Waterfront Ballpark District Project
Oakland, California**

Emissions Source	GHG Emissions ¹
	[MT/year]
	CO ₂ e
Direct Emissions from Oakland Power Plant Gas Turbines ²	-8,076
Indirect Emissions from Increased Renewables	-9,129
Emergency Standby Diesel Engine	--
Wipe Cleaning ³	--
Total Emissions	-17,206

Notes:

1. GHG emissions avoided are based on average historical operating conditions for facility from 2010-2018.
2. Gas turbine emissions based on average historical operating conditions for facility from 2010-2018.
3. Wipe cleaning emissions based on solvent evaporation rate and assume that 100% of solvent volatilizes.

Abbreviations:

CO₂e - carbon dioxide equivalent
 GHG - greenhouse gas
 MT - metric ton

**Table OP-19: Potential GHG Reductions from Rooftop Solar Photovoltaics
Oakland Waterfront Ballpark District Project
Oakland, California**

Phase 1 Buildout

Rooftop Area for Solar PV¹	Solar System Size²	Electricity Generation²
(m²)	(kW)	(MWh/yr)
7,695	1,154	1,762

Full Project Buildout (2028)

Rooftop Area for Solar PV¹	Solar System Size²	Electricity Generation²	CO₂e Emissions Reduction³
(m²)	(kW)	(MWh/yr)	(MT CO₂e/yr)
36,385	5,458	8,329	771

Notes:

- For the purpose of this calculation, it was assumed that 50% of the available rooftop space could be utilized for rooftop solar PV panels. Rooftop area was estimated from Project site plans.
- Annual electricity generated is calculated using the National Renewable Energy Laboratory's PVWatts[®], version 6. Input parameters are all defaults for Oakland, California, including a standard module type, fixed (roof mount) array type, system losses of 14.08%, tilt of 20 degrees, and azimuth of 180 degrees. Solar system size is calculated using the DC System Size for PVWatts: Size (kW) = Array Area (m²) x 1 kW/m² x Module Efficiency (%), with a default module efficiency of 15%.
- CO₂e emissions reductions assume that zero-carbon electricity replaces electricity otherwise supplied by PGE with the intensity factors shown in Table OP-3 for 2028.

Abbreviations:

CO ₂ e - carbon dioxide equivalents	PGE - Pacific Gas and Electric
m - meter	PV - photovoltaic
MT - metric ton(s)	kW - kilowatt
MWh - megawatt-hour	yr - year

References:

PVWatts. Available online at <https://pvwatts.nrel.gov/pvwatts.php>

**Table OP-20: Potential GHG Reductions from Replacing 50% of Residential Natural Gas Heating
Oakland Waterfront Ballpark District Project
Oakland, California**

Emissions Avoided from No Natural Gas Usage for 50% of Units

Land Use Type	CO ₂ e Emissions Reductions ¹ (MT CO ₂ e/yr)	
	Phase 1 Buildout	Full Buildout
Residential	126	698

Additional Electricity Use from Replacing Natural Gas and GHG Emissions if Using Grid Electricity Rather Than Zero-Carbon Electricity

Scenario	Electricity Use That Replaces Natural Gas Use ² (MWh/yr)	Additional CO ₂ e Emissions ¹ (MT CO ₂ e/yr)
Full Project Buildout (2028)	2,458	228

Notes:

- ¹ This calculation shows the reduction in emissions from natural gas consumption for residential land uses. If replaced by zero-carbon electricity, this is the total reduction. If replaced by grid electricity, additional emissions will be added as shown in the bottom table. Natural gas emissions are from Table OP-3.
- ² According to communication with Meyers+, it is assumed that about 40% of residential electricity usage should be added to account for heating.

Abbreviations:

CO₂e - carbon dioxide equivalents
 MT - metric ton(s)
 MWh - megawatt hours
 yr - year

ATTACHMENT 2

Coliseum Events

Sources:

Colby Tucker, AEG

Gretchen Claffey, AEG

Dave Rinetti, VP Stadium Operations, Oakland A's

Jason Silva, Stadium Operations System Manager, Oakland A's

Super Cross – Annual (historically one per year, two planned for 2019)

Monster Jam – Annual (twice per year)

Gigantour – 09/08/2006

U2 – 06/07/2011

Beyond Wonderland -9/29/12 (held in parking lot)

Kenny Chesney and Tim McGraw – 07/15/2012

Super City 50 – 02/06/2016

Super City Summer – 08/19/2016

Green Day – 08/05/2017

State of Trance – 06/29/2019

Rolling Loud- 9/28/19 (held in parking lot)

ATTACHMENT 3

**Table A. Treatment of Project Lifetimes from AB900 Applications
Oakland Athletics Howard Terminal Ballpark
Oakland, California**

Project	Summary	Project Lifetime
2017092053 – 3333 California Street Project	mixed-use redevelopment of former UCSF campus.	30 year emissions from full buildout (2028-2057)
2019050019 – California Northstate University Medical Center Project	mixed-use expansion of facilities, medical college, hospital, dormitories, retail, parking	30 years from full buildout of final phase, (2030 through 2060)
2019080493 – Downtown West Mixed Use Plan	7.3 MSF mixed use commercial office/retail/hotel/event facility/housing units/parking	30-year emissions from full buildout per phase (final buildout 2030-2060)
2018102028 – Balboa Reservoir	17.6 acres of mixed-income housing, open space, childcare facilities, retail space	30 year emissions from full buildout (2027-2057)
2017051079 – Hollywood & Wilcox Mixed-Use Project	mixed-use development project; 260 multifamily DUs; 11 ksf Retail; 3.6 ksf Office; 3.2 ksf Restaurant	30-year emissions from full buildout (2023- 2053)
2018021056 – Inglewood Basketball and Entertainment Center	New sports arena and offices for LA Clippers to replace Staples Center	30 year emissions from full buildout (July 2024 - 2054)
2017112005 – Potrero Power Station Mixed-use Project	5.4 MSF residential/commercial/entertainment use.	30 year emissions calculated from start of construction; (2020-2050); full buildout is 2034. Project never exceeds existing emissions.
2018051002 – Hollywood Center Project	Mixed-use development on existing parking & rental car & Capitol Records buildings.	30 year emissions from full buildout (2027-2056); cites SCAQMD 2008 for 30-year project life
2017121047 – 1045 Olive Street Project	Mixed-use development on existing commercial buildings & parking	30 year emissions from full buildout (2023-2052)
2017072018 – 10 Van Ness Avenue Mixed-Use Project	Mixed use residential building on existing auto dealership/service center	30 year emissions from full buildout (2022-2052)
2015111073 – 6220 West Yucca Project	Mixed use development on existing residential	30 year emissions from full buildout (2021-2050)
2015101073 – Crossroads Hollywood	Mixed use development on existing residential and commercial/retail/office space while preserving the Crossroads of the World historic site.	References emissions beyond full buildout year being the same as full buildout. 30-year lifetime from 2022
2015061061 – Qualcomm Stadium Reconstruction Project	San Diego Chargers stadium design	15 year emissions from full buildout (2020-2035)
2014112045 – Event Center and Mixed-Use Development at Mission Bay Blocks	Golden State Warriors stadium & other land uses on current parking lots	18 year emissions from full buildout (2017 - 2035)
2014011087 – 8150 Sunset Boulevard	Mixed-use development on existing commercial buildings	8 year emissions (2017-2025)
2013011007 – Soitec Solar Energy Project	Currently undeveloped land	construction emissions are amortized over 30 years but operational emissions are just given annually
2011082055 – Apple Campus 2	New Apple Campus redeveloping former HP campus.	4 year emissions (2016 - 2020)
2012011019 – McCoy Solar Energy Project	Currently undeveloped land	construction emissions are amortized over 30 years but operational emissions are just given annually

tes:

Details from California Governor's Office of Planning and Research. Available at: <http://opr.ca.gov/ceqa/california-jobs.html>. Accessed: October, 2019.

ATTACHMENT 4

Memorandum

Date: November 1, 2019
To: Noah Rosen, Oakland Athletics
From: Rob Rees, Fehr & Peers
Subject: Truck Delay Clarifications to Oakland A's AB 734 Application

OK16-0125.05

Following is Fehr & Peers clarification about the potential delays (and therefore potential additional emissions due to delays) from relocating trucks from Howard Terminal to other locations. Truck delay and emissions are already included in the AB734 analysis. The intersection delay and truck volumes in the Fehr & Peers memorandum were based on traffic data collected in September 2018 at several intersections near the Adeline and Market Street corridors adjacent to the Port and Howard Terminal, respectively. The data was collected on a weekday from 3 to 8 PM and included vehicles to and from the existing Howard Terminal operations including gate transactions. The analysis was completed for the Existing Conditions based on the collected data.

Then Fehr & Peers conducted a Future Conditions analysis including the existing traffic, buildout of the non-ballpark commercial and residential development at Howard Terminal, and redistributed vehicle trips from the existing Howard Terminal to the Port. The Port Staff requested in the transportation modeling, that all existing Howard Terminal-related traffic be redistributed to the Seaport access including Adeline, 7th, and Maritime Streets. While it cannot be known for certain where the Howard Terminal activities will be relocated, several of the Howard Terminal tenants were relocated to Howard Terminal from other Port properties. Thus, the analysis carries this assumption forward that the uses will be relocated to other Port properties after Howard Terminal site is redeveloped.

The Future Conditions also included recommended roadway and intersection improvements to be installed with the development. The road and intersection improvements include additional lanes on Adeline Street serving the Port as well as improved lane designations at the I-880 Off-Ramp at Union Street and 5th Street connecting the off-ramp to Adeline Street. These roadway changes will reduce the existing delay experienced by truck drivers today who use the Adeline Street Port access. In addition, the intersections on Adeline Street, Market Street, and Martin Luther King Jr Way would all be upgraded to meet current City Standards including the latest traffic signal timing / coordination technologies. With these recommended roadway and intersection changes day-to-day traffic operations would improve at some intersections even with the added traffic from the development.

ATTACHMENT 5



Eric Cherniss
Sr. Director, Corporate Development & Strategy

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October 28, 2019

California Air Resources Board
Attn: Shannon Hatcher
1001 I Street
Sacramento, California 95814

Dear Mr. Hatcher,

The Oakland Athletics (the "Oakland A's") have requested we provide an update on the status of the Oakland Power Plant (the "OPP"). This letter provides further clarification to our original letter dated July 31, 2019 describing the proposed conversion of the OPP to a battery energy by Vistra Energy ("Vistra").

First, we would like to confirm that the OPP continues to operate and generate power supporting local reliability in the East Bay. In the most recent PG&E blackouts we saw demand for the OPP increase significantly. It appears that in the month of October the OPP has been called upon more than in each of the previous two years demonstrating an increased reliance on the plant. In addition, the California ISO just renewed the Reliability Must Run ("RMR") Agreement for the plant through the end of 2020. As you may recall RMR contracts are entered into as a way to ensure there is enough on-hand generation to satisfy local reliability needs, especially during heat waves and now it appears to help with grid stability in the event of blackouts. The renewal letter is attached as Attachment A to this letter.

Second, we would like to confirm that there are no legal requirements or mandates requiring the conversion of the plant to battery energy storage. As discussed in the July 31 letter, there have been aspirations to either repower or shutdown the plant in the past, but none of these endeavors have come to fruition. In fact, the owners of the OPP have sought to retire the facility since 1998 and at that time were prevented from retiring the facility by the California ISO through the newly created RMR process. The facility has been renewed under a RMR agreement each year for the last 20 years. The OPP has remained a RMR facility because the California ISO and PG&E have found no other economic way of retiring or repowering the plant. We expect the California ISO will continue to extend the contract through 2022 but have no assurance that it will not extend the RMR contract further. As we explained in the July 31 letter, the plant could remain in service in its current form for many years to come without modification. There are no legal prohibitions precluding the continued renewal of the RMR agreements, nor are there any legal mandates requiring the conversion of the power plant to battery energy storage.

Third, we would like to reiterate a point made in the July 31 letter that if the transactions contemplated with the Oakland A's come to fruition then no party other than the Oakland A's will seek or obtain GHG credits for the conversion.

Finally, we believe it would be helpful to CARB to better understanding of the events leading up to the announcements of the East Bay Community Energy (ECBE) contract with the OPP and how the Oakland A's were integral in achieving such an outcome.

- Oakland A's and Vistra agree to a partnership around the OPP – May 2018
- Oakland A's send PG&E a formal letter supporting the OPP conversion – June 2018
- Vistra responds to PG&E and East Bay Community Energy RFO – June 2018
- Vistra issues a letter granting the Oakland A's authorization to include the OPP in the environmental review of the Oakland Waterfront Ballpark District- November 2018
- Vistra and the Oakland A's sign indicative letter of interest for a real estate transaction and energy management agreement – November 2018
- EBCE approves energy storage contract with Vistra for a new battery energy storage project at the OPP site – June 2019

The contract entered into with ECBE represents a portion of the proposed battery storage facility capacity. The remaining portion of the facility's products have not yet been contracted. Without additional procurement above and beyond the EBCE contract the existing units could remain online in parallel with the new battery facility. The proposed transactions with the Oakland A's, combined with the EBCE contract have helped to secure sufficient demand for a battery storage facility to make the proposed conversion project feasible. The parties involved understand that there are still risks to achieving conversion and are working collaboratively to make this project a success.

Please let us know if we can provide any further details or clarification.

Sincerely,

Eric Cherniss

Eric Cherniss
Sr. Director, Corporate Development & Strategy