

LAX Terminals 2 and 3 Modernization Project

Draft EIR

Appendix E

Energy Conservation

T2/T3 Modernization Project Draft EIR

T2/T3 GHG & Energy Analysis

CalEEMod Default Analysis (2013 T24 BL v 2013 T24 LEED)

		CO2e Emissions Comparison			
		2013 T24 GHG Baseline (Mty)	2013 T24 GHG LEED Future* (Mty)		
Total Construction CO2e	Area	0.02	0.02		
22,355.00 Metric Tons	Energy	6,300.63	9,899.09		
	Waste	368.56	691.14		
Amortized Construction CO2e	Water	1,740.73	1,972.06		
745.17 Metric Tons per Year for 30 Years	Total	8,409.95	12,562.31	Future - Baseline + Amortized Construction	4,897.53 Metric Tons per Year
				10,000	Metric Tons per Year GHG Incremental Threshold

Not accounting for reductions in electrical GHGs due to LADWP increased renewable energy portfolio per 2015 EIR-1100

	2013 T24 Baseline Utilities	2013 T24 LEED Future Utilities
Electricity Demand (KWhr/yr):	7,847,399	12,329,258
Natural Gas Demand (kBtu/yr):	26,776,423	42,069,154
Water Demand (Gal/yr):	182,232,169	207,386,502
Electricity from Water Demand (KWhr/yr):	2,829,414	3,205,420
Solid Waste Generation (tpy):	733	1,374

CalEEMod2016.3.1 Defaults (From User Guide Appendix A):

Electricity Emissions (KWhr/yr) _{Non-Residential} = Local Utility EF (lbs CO2e/MWh) * Energy Intensity (KWhr/sq.ft.) * Size	
Los Angeles Department of Water & Power	1,227.89 lbs CO2/MWh
Los Angeles Department of Water & Power	0.029 lbs CH4/MWh
Los Angeles Department of Water & Power	0.00617 lbs N2O/MWh
Los Angeles Department of Water & Power:	1230.45366 lbs CO2e/MWh
Elec. Energy Intensity for Non-Residential:	0.01363 KWhr/sq.ft.
<small>Based on: http://capabilities.itron.com/CeusWeb/Chart.aspx used in CalEEMod</small>	
Natural Gas Emissions (kBtu/yr) _{Non-Residential} = AP-42 EF (lbs CO2e/kBtu) * Energy Intensity (kBtu/sq.ft.) * Size	
AP-42 Natural Gas EF (lbs CO2e/kBtu):	0.11 lb CO2/kBtu
<small>Based on: https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s01.pdf AP-42 used in CalEEMod</small>	
N.Gas Energy Intensity for Non-Residential:	46.5074682 kBtu/sq.ft.
<small>Based on: http://capabilities.itron.com/CeusWeb/Chart.aspx used in CalEEMod</small>	
proposed Project Size	1,477,745.00 sq.ft.
Existing Size	788,031.00 sq.ft.
Outdoor Water Use Assumption:	28.75%
<small>Based on http://pacinst.org/app/uploads/2013/02/appendix_e3.pdf used in CalEEMod (pg.2 pdf)</small>	
Solid Waste CO2e Emissions:	0.9 tons of waste / 1000 sq.ft. / year

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T2/T3 GHG & Energy Analysis

Detailed Disclosure Analysis (2001 T24 BL v 2016 T24 LEED)

		CO2e Emissions Comparison				
		2005 T24 GHG Baseline (Mty)	2001 T24 GHG Baseline (Mty)	2013 T24 GHG LEED Future* (Mty)	2016 T24 GHG LEED Future* (Mty)	
Total Construction CO2e	Area	0 02	0 02	0 02	0 02	
22,355 00 Metric Tons	Energy	7,228 81	7,709 39	9,899 09	7,307 01	
	Waste	368 56	368 56	691 14	691 14	
Amortized Construction CO2e	Water	1,740 73	1,740 73	1,972 06	1,972 06	
745 17 Metric Tons per Year for 30 Years	Total	9,338 12	9,818 71	12,562 31	9,970 23	Future - Baseline + Amortized Construction
						896 69 Metric Tons per Year
						10,000 Metric Tons per Year GHG Incremental Threshold

Energy reductions of 7.7% for electricity & 3.2% for natural gas from page 8 of PDF removed from calculations: http://www.regie-energie.gc.ca/audiences/3526-04/DocumentsAud/3526/ASTROLab_3526_Engag-

Not accounting for reductions in electrical GHGs due to LADWP increased renewable energy portfolio per 2015 Final IRP

Energy reductions of 4.6% for electric ty & 0.05% for natural gas from page 3 of PDF http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/15-day_language/Impact_analysis/2016_Impact_Analysis_20_5-06-

	2005 T24 Baseline Utilities	2001 T24 Baseline Utilities	2013 T24 LEED Future Utilities	2016 T24 LEED Future Utilities
Electricity Demand (KWhr/yr):	9,003,437	9,696,702	12,329,258	11,762,112
Natural Gas Demand (kBtu/yr):	30,720,987	31,704,059	42,069,154	41,858,808
Water Demand (Gal/yr):	182,232,169	182,232,169	207,386,502	207,386,502
Electricity from Water Demand (KWhr/yr):	2,829,414	2,829,414	3,205,420	3,205,420
Solid Waste Generation (tpy):	733	733	1,374	1,374

CalEEMod2016.3.1 Defaults (From User Guide Appendix A):	
Electricity Emissions (KWhr/yr) ^{Non-Residential}	Local Utility EF (lbs CO2e/MWh) * Energy Intensity (KWhr/sq ft) * Size
Los Angeles Department of Water & Power	1,227 89 lbs CO2/MWh
Los Angeles Department of Water & Power	0 029 lbs CH4/MWh
Los Angeles Department of Water & Power	0 00617 lbs N2O/MWh
Los Angeles Department of Water & Power:	1230 45366 lbs CO2e/MWh
Elec Energy Intensity for Non-Residential:	0 01363 KWhr/sq ft
<i>Based on http://capabilities.itron.com/CeusWeb/Chart.aspx used in CalEEMod</i>	
Los Angeles Department of Water & Power:	851 lbs CO2e/MWh in 2023 based on 2015 Final IRP
Natural Gas Emissions (kBtu/yr) ^{Non-Residential}	AP-42 EF (lbs CO2e/kBTU) * Energy Intensity (kBtu/sq ft) * Size
AP-42 Natural Gas EF (lbs CO2e/kBTU):	0 11 lb CO2/kBTU
<i>Based on https://www3.epa.gov/ttr/chief/ep42/ch03/final/c03r01.pdf AP-42 used in CalEEMod</i>	
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Solid Waste CO2e Emissions:	0 9 tons of waste / 1000 sq ft / year

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T2/T3 GHG & Energy Analysis

CalEEMod Default Analysis (2013 T24 BL v 2013 T24 LEED MIT)

		CO2e Emissions Comparison			
with Mitigation		2013 T24 GHG Baseline (Mty)	2013 T24 GHG LEED Future* (Mty)		
Total Construction CO2e	Area	0.02	0.02		
18,715.00 Metric Tons	Energy	6,300.63	9,899.09		
	Waste	368.56	691.14		
Amortized Construction CO2e	Water	1,740.73	1,972.06		
623.83 Metric Tons per Year for 30 Years	Total	8,409.95	12,562.31	Future - Baseline + Amortized Construction	4,776.20 Metric Tons per Year
				10,000	Metric Tons per Year GHG Incremental Threshold

Not accounting for reductions in electrical GHGs due to LADWP increased renewable energy portfolio per 2015 EIR-11111

	2013 T24 Baseline Utilities	2013 T24 LEED Future Utilities
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Natural Gas Emissions (kBtu/yr) _{Non-Residential} = AP-42 EF (lbs CO2e/kBtu) * Energy Intensity (kBtu/sq.ft.) * Size	
AP-42 Natural Gas EF (lbs CO2e/kBtu):	0.11 lb CO2/kBtu
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						775 36
						10,000

Metric Tons per Year
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