

DOCKETED

Docket Number:	07-AFC-06C
Project Title:	Carlsbad Energy Center - Compliance
TN #:	203298
Document Title:	Amended CECP Emissions Net GHG With Low Load Information
Description:	N/A
Filer:	Dee Hutchinson
Organization:	Locke Lord LLP
Submitter Role:	Applicant Representative
Submission Date:	10/31/2014 1:52:44 PM
Docketed Date:	10/31/2014



Attorneys & Counselors

500 Capitol Mall, Suite 1800
Sacramento, CA 95814
Telephone: 916-930-2500
Fax: 916-930-2501
www.lockelord.com

John A. McKinsey
Direct Telephone: 916-930-2527
Direct Fax: 916-720-0443
jmckinsey@lockelord.com

October 31, 2014

VIA E-FILING

Carlsbad Energy Center Project (07-AFC-06C)
Karen Douglas, Commissioner and Presiding Member
Andrew McAllister, Commissioner and Associate Member
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Re: **Carlsbad Energy Center Project Petition to Amend (07-AFC-06C)
Amended CECP Emissions Net GHG With Low Load Information**

Dear Committee Members:

Carlsbad Energy Center LLC submits the enclosed Amended CECP Emissions Net GHG with low load information regarding the Carlsbad Energy Center Project Petition to Amend (07-AFC-06C). Please contact me if there are questions about the enclosure.

Locke Lord LLP

By: 

John A. McKinsey
Attorneys for Carlsbad Energy Center LLC

JAM:dh
Enclosure

**Greenhouse Gas Emissions Calculations - New Gas Turbines
Amended CECP**

Unit	Total Number of Units	Per Unit Heat Input (MMBtu/hr)	Six GTs Total Gross Output (MW)	Six GTs Total Net Output (MW)	Operating Hours per year per unit (8)	Six GTs Total Annual Fuel Use (MMBtu/yr)	Six GTs Total Estimated Annual Gross MWh	Six GTs Total Estimated Annual Net MWh	Maximum Gas Turbine Emissions (Six GTs) MT/year				Total Gas Turbine Emissions, MT/yr CO2e	Total Gas Turbine Emissions, tons/yr CO2e	Gas Turbine CO2e (Gross) MT/MWh	Gas Turbine CO2e (Gross) lbs/MWh	Gas Turbine CO2e (Net) MT/MWh	Gas Turbine CO2e (Net) lbs/MWh	Gas Turbine CO2 (Gross) MT/MWh	Gas Turbine CO2 (Gross) lbs/MWh	Gas Turbine CO2 (Net) MT/MWh	Gas Turbine CO2 (Net) lbs/MWh	
									CO2	CH4	N2O	SF6											
Gas Turbines - Full Load Hours(7)	6	984	653	632	1,900	11,213,040	1,240,742	1,200,800	594,964	11	1	--											
Gas Turbines - Startup Hours (low load period)(4)	6	377	163	152	167	377,200	27,209	25,342	20,014	0	0	--											
Gas Turbines - Startup Hours (high load period)(6)	6	984	653	632	233	1,377,040	152,372	147,467	73,066	1	0	--											
Gas Turbines - Shutdown Hours (low load period)(5)	6	377	163	152	87	196,144	14,149	13,178	10,407	0	0	--											
Gas Turbines - Shutdown Hours (high load period)(6)	6	984	653	632	313	1,849,168	204,614	198,027	98,117	2	0	--											
Total (Gas Turbines) =					2,700	15,012,592	1,639,085	1,584,814	796,568	15	2	--						0.486	1,071	0.503	1,108		
Total (Gas Turbines) =								CO2-Equivalent =	796,568	375	447	--	797,391	878,964	0.486	1.073	0.503	1,109					

Fuel	Emission Factors, kg/MMBtu		
	CO2 (1)	CH4 (2)	N2O (2)
Natural Gas	53.060	1.00E-03	1.00E-04
Diesel Fuel	73.960	3.00E-03	6.00E-04
Global Warming Potential (3)	1	25	298

- Notes:
- 40 CFR 98, Table C-1 (revised 11/29/13).
 - 40 CFR 98, Table C-2 (revised 11/29/13).
 - 40 CFR 98, Table A-1 (revised 11/29/13).
 - Per PTA for Amended CECP (PTA, Appendix 5.1B, Table 5.1B-4), a gas turbine achieves full compliance within 25 minutes during a startup. During this 25-min period it is assumed the GT is operating at an average of 25% load.
 - Per PTA for Amended CECP (PTA, Appendix 5.1B, Table 5.1B-4), the shutdown period for a gas turbine is 10 minutes. During this 10-min period it is assumed the GT is operating at an average of 25% load.
 - For the remainder of the hour (during an hour with either a startup or shutdown) it is assumed the GT is operating at 100% load (60.3 F average ambient condition).
 - Full load at 60.3 F average ambient condition.
 - The number of hours of low load startup operation is based on 400 startup events per year and 25-min of low load operation per startup event.
The number of hours of low load shutdown operation is based on 400 shutdown events per year and 10-min low load operation per shutdown event.