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| Project Title: | Alamitos Energy Center |
| TN #: | 214968 |
| Document Title: | Redacted Version of Attachment - A1411012 Powers Egr Reply Brief w Attachment A 07-15-01 |
| Description: | Attachment to Intervenor Los Cerritos Wetlands Land Trust Part 2 Opening Testimony, TN 214861 |
| Filer: | Patty Paul |
| Organization: | Los Cerritos Wetlands Land Trust |
| Submitter Role: | Intervenor |
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Table A-1. 2014 weighted-average capacity factor of OTC units in SCE West LA Basin

| Unit | capacity, MW | 2014 capacity factor (thru 8/14) | contribution to composite weighed- average CF of OTC units |
|--------------------|--------------|-------------------------------------|---|
| El Segundo 4 | 335 | 0.034 | 0.0028 |
| Huntington Beach 1 | 215 | 0.160 | 0.0084 |
| Huntington Beach 2 | 215 | 0.126 | 0.0066 |
| Redondo Beach 5 | 179 | 0.018 | 0.0008 |
| Redondo Beach 6 | 175 | 0.005 | 0.0002 |
| Redondo Beach 7 | 505 | 0.000 | 0.0000 |
| Redondo Beach 8 | 496 | 0.006 | 0.0007 |
| Alamitos 1 | 175 | 0.005 | 0.0002 |
| Alamitos 2 | 175 | 0.041 | 0.0018 |
| Alamitos 3 | 326 | 0.083 | 0.0066 |
| Alamitos 4 | 324 | 0.092 | 0.0073 |
| Alamitos 5 | 485 | 0.000 | 0.0000 |
| Alamitos 6 | 485 | 0.020 | 0.0024 |
| | 4090 | | 0.0378 |

reference, 2014 OTC unit capacity factors (thru August 2014):

CEC, *Tracking Progress - Once-Through Cooling Phase-Out*, February 17, 2015, Table 1, p. 3.

Total OTC unit MWh-yr, 2014:

1,354,024 [4,090 MW x 8,760 hr/yr x 0.0378]

Proposed CCGTs, MWh-yr:

7,194,400 Huntington Beach CCGT: 644 MW x 6,600 hr/yr = 4,250,400 MWh-yr
Alamitos CCGT: 640 MW x 4,600 hr/yr = 2,944,000 MWh-yr

Table A-2. Projected 2014 CO2 emissions from OTC units in SCE West LA Basin

| Unit | MW | 2014 CF (thru 8/14) | heat rate (MMBtu/MWh) | 2014 CO2 emissions (tpy) |
|--------------------|------|---------------------|-----------------------|--------------------------|
| El Segundo 4 | 335 | 0.034 | 11.140 | 65,451 |
| Huntington Beach 1 | 215 | 0.160 | 10.530 | 186,851 |
| Huntington Beach 2 | 215 | 0.126 | 10.690 | 149,381 |
| Redondo Beach 5 | 179 | 0.018 | 17.690 | 29,401 |
| Redondo Beach 6 | 175 | 0.005 | 22.280 | 10,056 |
| Redondo Beach 7 | 505 | 0.000 | 10.220 | - |
| Redondo Beach 8 | 496 | 0.006 | 10.910 | 16,748 |
| Alamitos 1 | 175 | 0.005 | 17.290 | 7,804 |
| Alamitos 2 | 175 | 0.041 | 14.560 | 53,888 |
| Alamitos 3 | 326 | 0.083 | 10.760 | 150,182 |
| Alamitos 4 | 324 | 0.092 | 11.130 | 171,134 |
| Alamitos 5 | 485 | 0.000 | 10.270 | - |
| Alamitos 6 | 485 | 0.020 | 10.700 | 53,538 |
| | 4090 | | | 894,435 |

CF = capacity factor

CO2 emission factor, natural gas combustion:

117.77 lb/MMBtu

reference: CEC, *Guidelines for Certification of CHP Systems Pursuant to the Waste Heat and Carbon Emissions Reduction Act, Public Utilities Code Section 2840 Et Seq.*, Feb. 2015, p. A-9.

Total OTC CO2 tpy, 2014:

894,435

reference - OTC unit heat rate:

CEC, *The Role of Aging and Once-Through-Cooled Power Plants in California—An Update*, February, 2010, Appendix B: Historical Operations Data.

CO2 Emission Rate from Proposed CCGTs at Huntington Beach and Alamitos:

| | | | |
|-------------------------|-----------|---|-------|
| | | Assumed CCGT heat rate, Btu/kWh: | 7,204 |
| Proposed CCGTs CO2 tpy: | 3,053,708 | Assumed CCGT CO2 emission rate, lb/MWh: | 848 |

CEC, *Thermal Efficiency of Gas-Fired Generation in California: 2014 Update*, September, 2014, Table 2, p.

reference - CCGT heat rate: 3.