



Cabrillo Power I LLC
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January 19, 2018

Ms. Eileen Sobeck
Executive Director
State Water Resources Board
Division of Water Quality, 15th Floor
1001 I Street
Sacramento, CA 95814

Re: Once Through Cooling Policy Implementation Plan Update for Encina Power Station, NPDES CA0001350, Order R9-2006-0043; Letter dated November 20, 2017

Dear Ms. Sobeck,

Cabrillo Power I LLC (Cabrillo), owner of the Encina Power Station (EPS) and wholly owned subsidiary of NRG Energy, Inc. (NRG), submits its response to the State Water Resources Control Board's (SWRCB) November 20, 2017 letter in which the SWRCB requested the most current information for EPS pursuant to the Use of Coastal and Estuarine Water for Power Plant Cooling (OTC Policy) and California Water Code §13383. Cabrillo respectfully responds to the questions and requests for information posed by the SWRCB in the November 20, 2017 letter.

1. Please provide a schedule for the completion of construction and commercial operation date of each unit for Carlsbad.

Construction of Carlsbad Energy Center Project (CECP) Units 6-10 will be completed in the 4th quarter of 2018. As construction of each unit is completed, commissioning of each unit will be conducted sequentially starting in the 2nd and 3rd quarter of 2018. The commercial on-line date for all units will be during the 4th quarter of 2018. The following is an approximate construction and commissioning schedule as of the date of this letter, subject to minor changes that would not affect the commercial on-line date during the 4th quarter of 2018.

- Unit 6 – Construction substantially completed August 2018; Commissioning substantially completed September 2018
- Unit 7 – Construction substantially completed August 2018; Commissioning substantially completed September 2018
- Unit 8 – Construction substantially completed July 2018; Commissioning substantially completed August 2018
- Unit 9 – Construction substantially completed June 2018; Commissioning substantially completed July 2018
- Unit 10 – Construction substantially completed May 2018; Commissioning substantially completed June 2018
- Facility Testing – October 2018

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3. Are there any contingencies that could delay the completion of Carlsbad beyond the fourth quarter of 2018? If yes, please explain.

There are no foreseeable contingencies that would delay the completion of CECP beyond the 4th quarter of 2018. NRG expects CECP to be commercially available during the 4th quarter of 2018.

4. Please provide a detailed plan to achieve compliance with the required interim mitigation measures, including the status of all components.

The Water Board issued the Draft Determination to Approve Mitigation Measures for the Water Control Policy on the Use of the Coastal and Estuarine Water for the Power Plant Cooling (Once-Through-Cooling Policy): Encina Power Station, on December 13, 2017 (see attached document). The 30-day public comment period closed on the Draft Determination. Cabrillo concurs with the Draft Determination for EPS's respective interim mitigation measures per the Once-Through Cooling Policy. The Draft Determination provided an estimate of interim mitigation payment for Encina Power Station for October 2015 – September 2016, which included the Site Specific Entrainment Cost with associated Entrainment Payment Calculation (\$4.65 per Million Gallons (MG of actual flow)), the Impingement Payment Calculation (\$0.80/lb * estimate of annual total fish impinged (lbs)), and the Management and Monitoring Calculation Payment (20% of entrainment and impingement payments). We understand that this calculation would be the basis for determining future annual interim mitigation fees if the Draft Determination is approved by the SWRCB.

Cabrillo intends to achieve compliance with Section 2.C(3) of the Once-Through-Cooling Policy by paying the interim mitigation fee as outlined in the Draft Determination.

5. Is there any other information that the State Water Board should be aware of?

As indicated in the November 20, 2017 letter, the Water Board amended the OTC Policy to modify the compliance date for EPS Units 2-5 to December 31, 2018 (Unit 1 was retired in 2017). CAISO has issued Capacity Procurement Mechanism designations to Units 4 and Unit 5 in 2018 during the period prior to the commercial operation of CECP (see attached document). Units 2 and 3 will remain available in 2018 to provide back-up capacity. All EPS units will retire per CAISO directives no later than when the CECP units become commercially available during the 4th quarter of 2018.

I anticipate the above information has addressed the SWRCB's questions regarding EPS and CECP. If you have any questions, comments, or concerns, please do not hesitate to contact me at george.piantka@nrg.com or (760) 710-2156.

Sincerely,
On behalf of Cabrillo Power I LLC



George L. Piantka, PE
Sr. Director, Regulatory Environmental Services
NRG Energy, West Region

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cc: Rebecca Fitzgerald, SWRCB
Maria de la Paz Carpio-Obeso, SWRCB
Jerry Carter, Cabrillo Power I LLC
Tim Sisk, NRG Energy, Inc.
Sheila Henika, NRG Energy, Inc.

Attachment A
Draft Determination for Encina Power Station's Interim Mitigation Fee

DRAFT DETERMINATION TO APPROVE MITIGATION MEASURES FOR THE WATER QUALITY CONTROL POLICY ON THE USE OF COASTAL AND ESTUARINE WATERS FOR POWER PLANT COOLING (ONCE-THROUGH COOLING POLICY):

ENCINA POWER STATION

Interim Mitigation Requirements of the Once-Through Cooling Policy

The Once-Through Cooling (OTC) Policy requires owners or operators of existing power plants to implement measures to mitigate interim impingement and entrainment impacts resulting from their cooling water intake structures. The interim mitigation period commenced on October 1, 2015, and continues up to and until owners or operators achieve final compliance with the OTC Policy. Section 2.C(3) of the Policy provides the following information for demonstrating compliance with interim mitigation:

- (a) Demonstrate to the satisfaction of the State Water Resources Control Board (State Water Board) that the owner or operator is compensating for the interim impingement and entrainment impacts through existing mitigation efforts, including any projects that are required by state or federal permits as of October 1, 2010; or
- (b) Demonstrate to the State Water Board's satisfaction that the interim impacts are compensated for by the owner or operator by providing funding to the California Coastal Conservancy which will work with the California Ocean Protection Council to fund an appropriate mitigation project; or
- (c) Develop and implement a mitigation project for the facility, approved by the State Water Board, which will compensate for the interim impingement and entrainment impacts.
- (d) Use the habitat production foregone (HPF) method, or comparable alternate method approved by the State Water Board in order to determine the habitat and area, based on replacement of the annual entrainment, for funding a mitigation project.
- (e) The State Water Board preference is that funding be provided to the California Coastal Conservancy, working with the California Ocean Protection Council, for mitigation projects directed toward increases in marine life associated with the State's Marine Protected Areas (MPA) in the geographic region of the facility.

In its April 1, 2011 Implementation Plan for compliance with the OTC Policy, NRG Energy, Inc. (NRG) proposed to comply with interim mitigation for its Encina Power Station by providing funding for mitigation projects directed towards increasing marine life in marine protected areas in the geographic region of the facility.

On August 18, 2015, the State Water Board adopted Resolution No. 2015-0057 (2015 Resolution), delegating to its Executive Director the authority to approve proposed measures

for power plant owners or operators to comply with interim mitigation on a case-by-case basis. The 2015 Resolution also includes procedures for calculating a mitigation payment for the power plants that have selected the interim mitigation option of providing funding to the Coastal Conservancy for appropriate mitigation projects. As described in the 2015 Resolution and consistent with the recommendations of the Expert Review Panel on minimizing and mitigating intake impacts from power plants and desalination facilities, the State Water Board calculated interim mitigation payments to equal the sum of three components: an entrainment payment, an impingement payment, and a management and monitoring payment.

Estimate of Interim Mitigation Payment for NRG's Encina Power Station

Site-Specific Entrainment Cost

To calculate the interim mitigation payment to offset entrainment impacts, staff used a facility-specific payment. The State Water Board contracted Dr. Peter Raimondi to evaluate the information provided in NRG's information response letter¹ dated November 29, 2016, and to ensure current information was used to develop a site-specific entrainment cost for Encina Power Station. On October 29, 2017, Dr. Peter Raimondi submitted a Technical Memorandum² to the State Water Board, which included an entrainment cost that reflects current costs for mitigation.

Dr. Raimondi calculated the facility-specific entrainment cost using two different site-specific entrainment cost estimates for Encina Power Station. One estimate was based on the restoration by Southern California Edison at San Dieguito Lagoon within the past ten years, and included an annual escalator of 3 percent per year, resulting in \$3.32 per million gallons (MG). The other entrainment cost estimate was based on a current estimate for simple wetland restoration, resulting in \$5.98 per MG. In the Technical Memorandum, Dr. Raimondi clarified that the differences between the two entrainment cost estimates likely reflect that the cost of restoration is increasing more rapidly than 3% per year and the restoration project at San Dieguito Lagoon was a relatively simple project in scope and effort. Since the two cost estimates bracket the likely cost of wetland restoration, it is appropriate to average the two entrainment cost estimates.

Entrainment Payment Calculation

The site-specific entrainment cost is calculated to be \$4.65 per MG as the average of two entrainment cost estimates, as shown below:

¹ Letter from George L. Piantka, NRG Energy, to Executive Director Tomas Howard, State Water Board. November 29, 2016.

<https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/powerplants/encina/docs/encina_imf16.pdf>

² Technical Memorandum from Dr. Raimondi, University of California at Santa Cruz, October 29, 2017

<https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/powerplants/encina/docs/encina_technical_memo.pdf>

$$(\$3.32 \text{ per MG} + \$5.98 \text{ per MG}) \div 2 = \$4.65 \text{ per MG}$$

To determine the intake volume, staff used the actual intake volume required for power generation and critical system maintenance at Encina Power Station, per the Encina Power Station's Final Determination³ posted on February 16, 2017 (2017 Determination). In their November 29, 2016 letter, NRG provided an intake volume of 80,125 MG used for power generation and critical system maintenance for the period of October 1, 2015, to September 30, 2016. The State Water Board verified the intake volumes through consultation with NRG.

$$80,125 \text{ MG} \times \$4.65 \text{ per MG} = \$372,581.25$$

Impingement Payment Calculation

In the November 29, 2016 letter, NRG provided two estimates for fish impingement, one impingement value based on the maximum design flow and one based on the actual intake flows from the period of the study. The latter estimate is representative of the annual total fishes impinged and is used for the impingement calculation. Staff calculated the impingement payment using the estimated total pounds of fish impinged during the impingement and entrainment study and the average indirect economic value of the fisheries as determined in the Expert Review Panel's final report of \$0.80 per pound.

Therefore, the impingement calculation is as follows:

$$\$0.80/\text{pound} \times 11,373 \text{ pounds} = \$9,098.40$$

Management and Monitoring Payment Calculation

Staff calculated the management and monitoring fee by taking twenty percent of the sum of the entrainment and impingement payments.

$$0.20 \times (\$372,581.25 + \$9,098.40) = \$76,335.93$$

State Water Board's Draft Determination for Encina Power Station

Based on the sum of the entrainment, impingement, and management and monitoring payment calculations, the total payment is \$458,015.85 to fulfill the interim mitigation obligation for NRG's Encina Power Station for the operating period of October 1, 2015, to September 30, 2016.

$$\$372,581.25 + \$9,098.40 + \$76,335.93 = \$458,015.58$$

³ Final Determination of the State Water Resources Control Board. February 16, 2017.
<https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/docs/eps_final_determination.pdf>

Attachment B

CAISO Capacity Procurement Mechanism Designation on 12/22/2017-Encina Power Station

Market Notice

December 22, 2017

REQUESTED ACTION

Information Only

CATEGORIES

Market Operations
 Planning
 System Operations

Capacity Procurement Mechanism Designation on 12/22/17

SUMMARY

The California ISO has issued a Capacity Procurement Mechanism (CPM) designation to MOSSLD_2_PSP1, ENCINA_7_EA4, and ENCINA_7_EA5 under its authority to designate CPM Capacity based on scheduling coordinators' failure to demonstrate sufficient local capacity in individual annual Resource Adequacy plans (tariff section 43A.2.1.1) and failure to collectively procure sufficient capacity to ensure compliance with the Local Capacity Technical Study criteria (tariff section 43A.2.2). The designation is effective January 1, 2018, for a 12-month term that may be reduced in duration.

MESSAGE

The ISO has issued a CPM designation to the capacity identified below, effective January 1, 2018. The ISO issued this designation pursuant to its authority to designate CPM Capacity based on scheduling coordinators' failure to demonstrate sufficient local capacity in individual annual Resource Adequacy plans (tariff section 43A.2.1.1) and failure to collectively procure sufficient capacity to ensure compliance with the Local Capacity Technical Study (tariff section 43A.2.2).

Resource ID	MW	TAC Area
MOSSLD_2_PSP1	510	PGE
ENCINA_7_EA4	272	SDGE
ENCINA_7_EA5	273	SDGE

Based on annual Resource Adequacy plans submitted, and supplements thereto, the ISO has determined that it will not have capacity in the South Bay-Moss Landing sub-area, part of the Bay Area Local Capacity Area, as well as the San Diego-Imperial Valley Local Capacity Area in 2018 sufficient to comply with the

Local Capacity Technical Study criteria provided in section [40.3.1.1](#) of the ISO tariff.

The total MWs of capacity at each unit that is being designated under section 43A.2.1.1 authority will vary month-by-month based on the extent to which individual scheduling coordinators were deficient in demonstrating local capacity as determined in section 40.3.2 of the ISO tariff. In a month where the combined individual scheduling coordinator deficiencies are below the combined MW of CPM-designated capacity in the given TAC area, the difference between the total CPM-designated capacity in the TAC area and the total in individual deficiencies in the TAC area will be designated as capacity procured pursuant to authority under section 43A.2.2. All other capacity will be deemed procured under the ISO's authority under section 43A.2.1.1.

The CPM term is for 12 months, subject to adjustment and the payment provisions set forth in the CPM tariff provisions.

Based on discussions with the scheduling coordinator for the two Encina units, the ISO expects that the overall CPM designation quantity at the Encina Units will be reduced, through mutual agreement with the scheduling coordinator, on a MW-for-MW basis starting with the first day of the month for which a unit under-construction at the Carlsbad Energy Center is eligible to be shown in the monthly RA process. The Encina units and the Carlsbad Energy Center are co-located and currently controlled by the same entity.

The ISO will provide a designation report in accordance with tariff section 43A.6.2 within 10 days after the end of the month. The report will be available on the ISO website at

<http://www.caiso.com/market/Pages/ReportsBulletins/Default.aspx>, under the *Capacity procurement mechanism* heading.

CONTACT INFORMATION

Catalin Micsa at cmicsa@caiso.com or Gautham Katta at gkatta@caiso.com



[Glossary of terms and acronyms](#)

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