BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION
OF THE STATE OF CALIFORNIA

In the Matter of:	)	Docket No.: 00-AFC-13C
	)	
Huntington Beach Generating Station Retool Project	)	COMMMISSION ORDER
	)	

The Huntington Beach Generating Station Retool Project ("the Project") was licensed by an emergency proceeding, consistent with an Executive Order from the Governor, during the energy crisis of 2001. Consistent with the Executive Order and the crisis it addressed, the Project was licensed without following the normal licensing procedure timelines of the California Energy Commission ("Commission"). The Project was licensed for refurbishment and operation prior to environmental studies that would normally occur to determine the impact of its once-through cooling systems on the marine biology offshore from the facility.

The Commission required post-licensing studies to determine environmental impact on aquatic life and the payment of suitable mitigation costs if those impacts were found to be significant. In light of the unstudied environmental questions and other aspects of the emergency consideration of the license, the Commission required that the emergency license expire on September 30, 2006, unless the Commission finds that: 1) the Project is in substantial compliance with all conditions of certification; 2) the Project is mitigating its contribution to environmental impacts (i.e., entrainment and impingement of marine organisms) as determined by studies agreed upon by the Project applicant, Commission staff ("staff"), and other interested parties; and 3) all required permits are in force and the Project is in substantial compliance. (Condition Emergency-2.)

The interested parties agreed on the impact study regimen, and these studies were concluded in 2005. Staff, applicant, and other parties have met to determine what the studies indicate, including the actual environmental effect of the Project's operation on the marine environment. Applicant, staff, and other interested parties agree that this impact is best mitigated by enhancement of regional ocean productivity, and that such enhancement should include the purchase, restoration, and preservation of tidal wetlands near the Project site.

The one area of disagreement between applicant, staff, and the parties was with regard to how much marine impact the Project has, based on the agreed to studies and results. This dispute translates into the issue of how much wetland must be acquired, improved, and maintained to mitigate such impact.

This issue came on for hearing at the Commission's September 14, 2006, business meeting. At this meeting both staff and the applicant representatives gave elaborate presentations of their differing methods for determining marine impact. In addition, applicant raised issues about the fairness of the numerical method used to calculate marine impact concerning the first five years of its license (four years during which the Project operated). Staff proposed calculating impact, both for the retrospective five year period and the five year prospective period, based on 100 percent of the Project's permitted operation. However, during the first five years the project had operated at considerably less than its permitted level. The applicant thus argued that the level of mitigation, at least for the initial five-year period, was disproportionate and unfair. The Commission continued the hearing until September 27, 2006, to allow staff, applicant, and interested parties to meet and consider whether the mitigation requirements should reflect actual operation during the first five years, among other issues.

Staff held a public workshop with applicant and interested parties on September 25. At this workshop the participants considered several alternative mitigation proposals submitted by applicant regarding how to best calculate the measure of mitigation that should be required to mitigate the project. These proposals and staff's responses to them are discussed in staff's September 26 memorandum ("Workshop Report") that is the Attachment to this Order.

In the Workshop Report staff indicated that it preferred the mitigation that would be required based on 100 percent of the permit limit (a figure corrected to require $8.58 million worth of habitat restoration) for the entire 10 year period of an extended license or, alternatively, on an operating profile that reflects a reasonably conservative estimate of likely operations. If, in the future, the level of operation (including water used for cooling) exceeds this level, applicant will be required to "true up" its mitigation and provide additional money for habitat restoration. (Staff referred to this level of operation that would require additional “true-up” mitigation as a "soft cap.") However, since both staff and applicant believe that the "reasonable worst case" operating scenario is unlikely to be exceeded, they agree that such a "true up" probably will not be necessary.

The staff's alternative (or compromise) proposal is "Profile 3" on page 4 of the Workshop Report. It requires the restoration and maintenance for 10 years of 66.8 acres of wetlands, which has been translated into $5,511,000 (including $523,712 for maintenance for 10 years) for mitigation from the applicant. A potential (but unlikely) "true up" from operation that exceeds the assumptions on which this number is based is included as part of this proposal.

At the September 27 continued hearing the parties discussed the various mitigation "profiles," and applicant agreed to mitigate in accordance with the terms of "Profile *3* in the Workshop Report. Staff and applicant both believe that "Profile 3 is a reasonable and fair way of calculating the proportionate mitigation of the Project. Based on the evidence of record and the statements of the parties, the Commission agrees, and makes the following findings of fact:

1. The Project uses ocean water for cooling, resulting in impingement and entrainment of marine organisms, which constitutes a significant cumulative impact to regional marine biology.

2. The measure of this impact was not mitigated prior to licensing because of the need to license the Project on an emergency basis pursuant to the 2001 Executive Order.

3. The Project's emergency license will expire on September 30 unless the Commission determines, among other matters, that the applicant is mitigating for Project effects from once-through cooling.

5. Project effects have been determined by elaborate marine biology studies conducted by consultants to the applicant, with oversight from the Commission and other interested agencies.

6. The impacts to marine species from once-through cooling can be offset by increased productivity from regional wetlands, if such wetlands are purchased, improved, and preserved for such purposes.

7. Mitigation for impacts to marine species will be offset by the purchase, improvement, and preservation of 66.8 acres of regional wetlands.

8. The 66.8 acres of regional wetlands that would offset this impact can be improved and maintained for 10 years for $5,511,000, as described in the Attachment.

9. The 66.8 acres of regional wetlands will be acquired, improved, and maintained by the Huntington Beach Wetlands Conservancy.

10. The restoration of 66.8 acres of regional wetlands for improvement and preservation will proportionately mitigate the effects of the Project's once-through cooling on the marine environment.

11. The Project's owners are providing the funding for the purchase of 66.8 acres by lump sum, and therefore are mitigating for the Project's effect on the marine environment.

In view of the above findings, the Commission further finds and orders:

1. The Project is mitigating its contribution to environmental impacts by paying for the purchase, restoration, and maintenance for 10 years of 66.8 acres of tidal wetlands, at a cost of $5,511,000.

2. The Project is in substantial compliance with the conditions of certification.

3. All currently required permits (i.e., the NPDES permit) are in force and the project owner is in substantial compliance with such permits.

4. The Project owner shall provide the $5,511,000 mitigation funding to the Huntington Beach Wetlands Conservancy within 90 days of this order; applicant shall pay the $523,536 maintenance portion of this amount now by lump sum, rather than over a 10-year period, applicant may apply a six percent discount rate to the latter sum.

5. Applicant shall begin monitoring daily intake flows now and report them quarterly to the CPM to determine whether such flows exceed what staff has called the "soft cap."

6. The Huntington Beach Generating Station Retool Project license is hereby extended for an additional five years from the date of this determination, until September 30,2011.

Date: September 27, 2006

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

ABSENT

JACKALYNE PFANNENSTIEL
Chairman

ABSENT

JOHN L. GEESMAN
Commissioner

JEFFREY D. BYRON
Commissioner

JAMES D. BOYD
Commissioner

ARTHUR H. ROSENFELD
Commissioner

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

September 27,2006 Business Meeting
Agenda **Item:** 7a

DATE: September 26,2006

TO: California Energy Commissioners and Interested Parties

FROM: Donna Stone, Compliance Project Manager
Paul Kramer, Counsel for Staff

SUBJECT: AES Huntington Beach Generating Station Retool Project (00-AFC-13C)
Report of September 25 Staff Workshop

As suggested by the Energy Commission at its September 14,2006, Business Meeting, Energy Commission staff conducted a staff workshop on September 25, 2006 regarding mitigation for the impingement and entrainment impacts of the AES Huntington Beach Generating Station's (HBGS) once-through cooling system. Prior to the workshop, AES submitted several alternative proposals and staff asked several clarifying questions of AES via email. Attending the workshop were representatives of the Santa Ana Regional Water Quality Control Board, Coastal Commission, State Lands Commission, and the Huntington Beach Wetlands Conservancy. Prior to the workshop, Commissioner Byron sent a letter to the parties asking that they discuss "a mitigation package that would be based on the actual operating history for the first five years of the project, and the full permitted level of operation for the five year extension of the license." Though not explicitly stated in the letter, we presume Commissioner Byron intends an average of the historical and full permitted levels.

In its pre-workshop submittal (attached for reference), AES offered nine scenarios consisting of varying combinations of choices such as the method of determining the area of habitat production foregone (APF), and splitting the mitigating habitat obligation into two parts--one to be provided now and the other to be provided in 2011 if the license is extended. Staff evaluated the proposed scenarios to determine which are consistent with the principles which underlie its original mitigation recommendation, approved by the Siting Committee, for the payment of $7,956,000[1] to restore 104 acres of the Huntington Beach Wetlands and maintain them for 10 years.

The key principle underlying staffs analysis is that the mitigation chosen must be capable, on an annual basis, of replacing the species lost during the year. The capacity of the mitigation, then, must be equal to the highest year's losses. Determining the level of mitigation on an average of several years of historic operating data, either as proposed in several of AES' scenarios or perhaps in Commissioner Byron's letter, would

[1] In making the calculations to prepare this report, we discovered an error in the cost of the 104 restoration proposal. The basic numbers contained in staffs analvsis for the Siting Committee Workshop in Julv and the Commission's September 14 Business Meeting are correct—$74,660 per acre to restore and $784 per acre per year for 10 years for maintenance—but the numbers were not correctly combined. The proper total cost, including restoration and 10 years of maintenance, is $8,580,000, which is shown on the table at the end of this report.

lead to less than full mitigation of impacts in above average years. Similarly, postponing payment of half of the cost of complete mitigation until 2011, to be paid only if the license is extended, fails to provide sufficient mitigation in the near term.

Staff has identified a concept from the proposals that is consistent with our mitigation principles. In Scenario 4b, AES proposes to set a "soft cap" at operating levels that it does not expect to exceed under any reasonably expected scenario. It would provide a mitigation payment based on the APF calculated for those operating levels. Each year it would recalculate the APF on its quarterly flows for units 3 and 4[2]; if that APF exceeds the APF "cap," it would provide an additional mitigation payment for the additional acres and the cap for following years would be the new higher APF.

AES prefers the soft cap approach because it is based on operating parameters closer, but still above, what it expects to achieve rather than the theoretical maximum flows allowed under its permits. The soft cap satisfies staffs mitigation principles so long as the cap is based upon a sufficiently conservative assumption of the highest likely operating results. We are not in favor of setting the cap too low because, even though the formula calls for additional mitigation payments if the cap is exceeded, it is more difficult to provide effective mitigation if the payments are not predictable (i.e., payable at the beginning). Wetlands cannot generally be developed in small pieces. As it is, monies committed today will not result in productive wetlands until at least three to five years from now; delaying payment further delays the provision of that mitigation.

AES has proposed a maximum operating profile that results in an APF of 59.3 acres (Profile 4 in the table below). Mindful of the above concerns, staff favors a more conservative profile, based on a profile proposed by AES prior to the July Siting Committee workshop, that results in a 66.8 acre APF (Profile 3). For comparison purposes, the table also shows staffs original recommendation (Profile 1, 104 acre APF) and the results suggested for discussion by Commission Byron (Profile 2, 72.9 acre APF).

At the workshop, AES expressed a concern that it be able to clearly show future regulators, both at the Energy Commission and other agencies, that the number of acres of mitigation ultimately chosen is related to a specific rate of water flow through the cooling system. For that reason, AES is uncomfortable with the averaging of historical flows and maximum permitted flows; they do not think it will clearly indicate to future regulators exactly what level of activity they have mitigated. Staff shares that concern and prefers the soft cap methodology.

During the workshop, there was some confusion over the amount and timing of maintenance costs. We have since clarified that they are intended to be $784 per acre

[2] At the staff workshop, AES used the phrase "quarterly average volumetric flows." Staff is concerned that the use of "average" may imply something other than the use of actual flow data. Our presentation of the Profile options in this memo assumes that APFs will he calculated using actual quarterly volumetric flow data.

per year for ten years. AES has proposed paying those costs in a lump sum, calculating the net present value of that payment stream at a discount rate of 12%, the rate of return it says it can earn on its investment capital. We do not believe that the Conservancy can earn such a high rate of return, however, which could result in a shortage of maintenance funds over time. Rather, we propose that AES either negotiate a suitable discount rate with the Conservancy or make the payments as they come due over the next ten years.

SUMMARY

For the reasons described above, staff believes that Profiles 1 and 3 in the table below are consistent with the principles it applied in making its recommendation for mitigation of the HBGS units 3 and 4 cooling system impacts. If Profiles 2, 3 or 4 are chosen, staff recommends that any future mitigation payments required if the APF is exceeded be adjusted for inflation according to an appropriate CPI. No matter which Profile is chosen, AES should make full payment (excepting years 2 through 10 of maintenance) within 90 days of the Commission's decision and begin reporting daily actual intake flows each quarter to the CPM so that we can monitor and recalculate the "soft cap."

Profile		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	APF/ Cost
1-Sept. 14 Staff proposal	% Operation	100%	100%	100%	100%	104 acres
	CW Vol (MGD)	253.5	253.5	253.5	253.5	$ 8,580,000[3]
2-Average permitted maximum and historic flows[4]	% Operation	55%	62%	78%	60%	72.9 acres
	CW Vol (MGD)	139.4	157.2	197.7	152.1	$ 6,014,250[5]
3-AES' proposal prior to July Siting Comm. workshop	% Operation	25%	50%	80%	45%	66.8 acres
	CW Vol (MGD)	63.4	126.8	202.8	114.1	$ 5,511,000[6]
4-Sept. 20 AES Proposal	% Operation	15%	35%	80%	25%	59.3 acres
	CW Vol (MGD)	38.0	88.7	202.8	63.4	$ 4,892,250[7]

Attachments:
September 20, 2006 letter from Eric Pendergrafi (AES) to Paul Richins
September 25, 2006 letter from Commissioner Byron to parties

[3] $7,764,640 + $815,360 for maintenance (ten annual payments of $81,536)
[4] All calculations for this Profile are mathematical averages of existing data and results. They were not run through the ETM model, which may yield a slightly different APF.
[5] $5,442,714 + $571,536 maintenance
[6] $4,987,288 + $523,712 for maintenance
[7] $4,427,338 + $464,912 for maintenance

AES Huntington Beach, L.L.C.

September 20,2006

Transmitted Via **Email**

Paul Richins
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Re: AES Huntington Beach Retool Project For Units **3 &** 4
Docket No. **00-AFC-13**

Dear Mr. Richins:

Consistent with the direction provided by the California Energy Commission (CEC) during the business meeting on September **14th,** 2006, AES Huntington Beach (AESHB) submits the attached options for calculating mitigation amounts for consideration by CEC Staff. These options are all based on the science and area of production foregone (APF) methodology recommended by CEC Staff.

As AESHB presented during the business meeting, both the unique nature of this license and the actual or maximum expected operating profile of the units are important factors in determining the proportionate mitigation. The attached proposals are all based on the same underlying assumptions as the CEC Staff proposal. The differences in these proposals reflect various reasonable assumptions regarding plant operations, the term of the certification, and the method to ensure compliance.

AESHB remains committed to compensating for appropriate and proportional entrainment and impingement impacts and we are hopeful that the CEC will find an acceptable alternative among the options we have provided.

Thank you for your consideration.

Respectfully,

Eric Pendergraft
Plant Manager, AES Huntington Beach

cc: Donna Stone, California Energy Commission
Roger Johnson, California Energy Commission
Arlene Ichien, California Energy Commission
Paul Kramer, California Energy Commission
Rick York, California Energy Commission

21730 Newland Street
Huntington Beach, CA 92646
Phone (714) 374-1476
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HBGS Mitigation Proposal - Option 1a

Operational Assumptions: An average of the actual volume of circulating water (CW) flow over the first 5 years of the certification and a reasonable estimate of the shaped annual average volume of CW flow over the remaining term of the license.

Profile of Actual Average Circulating Water Volume for the First 5 Years:

% Operation	1st Qtr 10%	2nd Qtr 24%	3rd Qtr 56%	4th Qtr 20%	Annual 27.5%	APF (Acres)
CW Volume (MGD)	25.4	60.8	142.0	50.7	69.7	41.8

Profile of Proposed Average Circulating Water Volume for Remaining Term:

% Operation	1st Qtr 15%	2nd Qtr 35%	3rd Qtr 80%	4th Qtr 25%	Annual 38.8%	APF (Acres)
CW Volume (MGD)	38.0	88.7	202.8	63.4	98.2	59.3

Term Assumption: Through September, 2011

Compliance Method: The actual average volume of CW flow during the second five years of the certification will be determined and reported. Any uncompensated losses at the end of the current license period will be mitigated at a ratio of two acres of wetland restoration for each acre of uncompensated area of production foregone (APF).

Calculation:
Step 1: Average the APF based on the actual circulating water flow volume over the first 5 years and the APF based on proposed CW flow profile over the remaining term.

Avg. APF = (41.8 acres + 59.3 acres) / 2 = 50.6 acres

Step 2: Adjust for the term of the certification by dividing by two. Any extension of the license in 2011 would require the second half of the restoration payment.

50.6 acres / 2 x $74,660/acre = $1,888,898

Step 3: Calculate the net present value of the maintenance costs over the 10 year term of the existing license assuming a 12% discount rate.

Annual Maintenance Cost = 50.6 acres x $784/acre-year = $39,670 per year
$NPV_{@12\%}$ of 10 years maintenance = $224,147

Step 4: Calculate the total:

Mitigation Fee = $1,888,898 + $224,147 = $2,113,045
If extended in 2011: $2,113,045

HBGS Mitigation Proposal - Option 1b

Operational Assumptions: An average of the actual volume of circulating water (CW) flow over the first 5 years of the certification and a reasonable estimate of the shaped annual average volume of CW flow over the remaining term of the license.

Profile of Actual Average Circulating Water Volume for the First 5 Years:

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	APF
% Operation	10%	24%	56%	20%	27.5%	(Acres)
CW Volume (MGD)	25.4	60.8	142.0	50.7	69.7	41.8

Profile of Proposed Average Circulating Water Volume for Remaining Term:

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	APF
% Operation	15%	35%	80%	25%	38.8%	(Acres)
CW Volume (MGD)	38.0	88.7	202.8	63.4	98.2	59.3

Term Assumption: Through September, 2011

Compliance Method: The average CW flow volume will be calculated and reported on an annual basis. Any uncompensated impacts will be paid annually at a mitigation ratio of one acre of wetlands restoration for each acre of APF exceeded.

Calculation:
Step 1: Average the APF based on actual circulating water flow volume over the first 5 years and the APF based on proposed CW flow profile over the remaining term.

Avg. APF = (41.8 acres + 59.3 acres) / 2 = 50.6 acres

Step 2: Adjust for the term of the certification by dividing by two. Any extension of the license in 2011 would require the second half of the restoration payment.

50.6 acres 1 2 x $74,660/acre = $1,888,898

Step 3: Calculate the net present value of the maintenance costs over the 10 year term of the existing license assuming a 12% discount rate.

Annual Maintenance Cost = 50.6 acres x $784/acre-year = $36,670 per year
$NPV_{@12\%}$ of 10 years maintenance = $224,147

Step 4: Total the amounts:

Mitigation Fee = $1,888,898 + $224,147 = $2,113,045
If extended in 2011: $2,113,045

HBGS Mitigation Proposal - Option 2a

Operational Assumplion: A reasonable estimate of the shaped annual average volume of circulating water (CW) flow over the remaining term of the license.

Profile of Proposed Average Circulating Water Volume for Remaining Term:

% Operation	1st Qtr 15%	2nd Qtr 35%	3rd Qtr 80%	4th Qtr 25%	Annual 38.8%	APF (Acres)
CW Volume (MGD)	38.0	88.7	202.8	63.4	98.2	59.3

Term Assumption: Through September, 2011

Compliance Method: The actual average volume of CW flow during the second five years of the certification will be determined and reported. Any uncompensated losses at the end of the current license period will be mitigated at a ratio of two acres of wetland restoration for each acre of uncompensated area of production foregone (APF).

Calculation:
Step 1: Determine the APF based on proposed CW flow profile over the remaining term.

Avg. APF = 59.3 acres

Step 2: Adjust for the term of the certification by dividing by two. Any extension of the license in 2011 would require the second half of the restoration payment.

59.3 acres / 2 x $74,660/acre = $2,213,669

Step 3: Calculate the net present value of the maintenance costs over the 10 year term of the existing license assuming a 12% discount rate.

Annual Maintenance Cost = 59.3 acres x $784/acre-year = $46,491 per year
$NPV_{@12\%}$ of 10 years maintenance = $262,686

Step 4: Total the amounts.

Mitigation Fee = $2,213,669 + $262,686 = $2,476,355
If extended in 2011: $2,476,355

HBGS Mitigation Proposal - Option 2b

Operational Assumption: A reasonable estimate of the shaped annual average volume of circulating water (CW) flow over the remaining term of the license.

Profile of Proposed Average Circulating Water Volume for Remaining Term:

% Operation	1st Qtr 15%	2nd Qtr 35%	3rd Qtr 80%	4th Qtr 25%	Annual 38.8%	AFF (Acres)
CW Volume (MGD)	38.0	88.7	202.8	63.4	98.2	59.3

Term Assumption: Through September, 2011

Compliance Method: The average CW flow volume will be calculated and reported on an annual basis. Any uncompensated impacts will be paid annually at a mitigation ratio of one acre of wetlands restoration for each acre of APF exceeded.

Calculation:
Step 1: Determine the APF based on proposed CW flow profile over the remaining term.

Avg. APF = 59.3 acres

Step 2: Adjust for the term of the certification by dividing by two. Any extension of the license in 2011 would require the second half of the restoration payment.

59.3 acres / 2 x $74,660/acre = $2,213,669

Step 3: Calculate the net present value of the maintenance costs over the 10 year term of the existing license assuming a 12% discount rate.

Annual Maintenance Cost = 59.3 acres x $784/acre-year = $46,491 per year
$NPV_{@\,12\%}$ of 10 years maintenance = $262,686

Step 4: Total the amounts.

Mitigation Fee = $2,213,669 + $262,686 = $2,476,355
If extended in 2011: $2,476,355

HBGS Mitigation Proposal - Option 3a

Operational Assumptions: **An** average of the actual volume of circulating water (CW) flow over the first 5 years of the certification and a reasonable estimate of the shaped annual average volume of CW flow assuming an unlimited license term.

Profile of Actual Average Circulating Water Volume for the First 5 Years:

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	APF
% Operation	10%	24%	56%	20%	27.5%	(Acres)
CW Volume (MGD)	25.4	60.8	142.0	50.7	69.7	41.8

Profile of Proposed Average Circulating Water Volume for Remaining Term:

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	APF
% Operation	15%	35%	80%	25%	38.8%	(Acres)
CW Volume (MGD)	38.0	88.7	202.8	63.4	98.2	59.3

Term Assumption: Unlimited

Compliance Method: The actual average volume of CW flow during the second five years of the certification will be determined and reported. Any uncompensated losses at the end of the current license period will be mitigated at a ratio of two acres of wetland restoration for each acre of uncompensated area of production foregone (APF).

Calculation:
Step 1: Average the APF based on actual circulating water flow volume over the first 5 years and the APF based on proposed CW flow profile over the remaining term.

Avg. APF = (41.8 acres + 59.3 acres) / 2 = 50.6 acres

Step 2: Calculate mitigation cost,

50.6 acres x $74,660/acre = $3,777,796

Step 3: Calculate the net present value of the maintenance costs over the 10 year term of the existing license assuming a 12% discount rate.

Annual Maintenance Cost = 50.6 acres x $784/acre-year = $39,670 per year
$NPV_{@\ 12\%}$ of 10 years maintenance = $224,147

Step 4: Total the amounts.

Mitigation Fee = $3,777,796 + $224,147 = $4,001,943

HBGS Mitigation Proposal - Option 3b

Operational Assumptions: An average of the actual volume of circulating water (CW) flow over the first 5 years of the certification and a reasonable estimate of the shaped annual average volume of CW flow assuming an unlimited license term.

Profile of Actual Average Circulating Water Volume for the First 5 Years:

% Operation	1st Qtr 10%	2nd Qtr 24%	3rd Qtr 56%	4th Qtr 20%	Annual 27.5%	APF (Acres)
CW Volume (MGD)	25.4	60.8	142.0	50.7	69.7	41.8

Profile of Proposed Average Circulating Water Volume for Remaining Term:

% Operation	1st Qtr 15%	2nd Qtr 35%	3rd Qtr 80%	4th Qtr 25%	Annual 38.8%	APF (Acres)
CW Volume (MGD)	38.0	88.7	202.8	63.4	98.2	59.3

Term Assumption: Unlimited

Compliance Method: The average CW flow volume will be calculated and reported on an annual basis. Any uncompensated impacts will be paid annually at a mitigation ratio of one acre of wetlands restoration for each acre of APF exceeded.

Calculation:
Step 1: Average the APF based on actual circulating water flow volume over the first 5 years and the APF based on proposed CW flow profile over the remaining term.

Avg. APF = (41.8 acres + 59.3 acres) / 2 = 50.6 acres

Step 2: Calculate mitigation cost.

50.6 acres x $74,660/acre = $3,777,796

Step 3: Calculate the net present value of the maintenance costs over the 10 year term of the existing license assuming a 12% discount rate.

Annual Maintenance Cost = 50.6 acres x $784/acre-year = $39,670 per year
$NPV_{@12\%}$ of 10 years maintenance = $224,147

Step 4: Total the amounts.

Mitigation Fee: = $3,777,796+ $224,147 = $4,001,943

HBGS Mitigation Proposal - Option 4a

Operational Assumption: A reasonable estimate of the shaped annual average volume of CW flow assuming an unlimited license term.

Profile of Proposed Average Circulating Water Volume **for** Remaining Term:

% Operation	1st Qtr 15%	2nd Qtr 35%	3rd Qtr 80%	4th Qtr 25%	Annual 38.8%	APF (Acres)
CW Volume (MGD)	38.0	88.7	202.8	63.4	98.2	59.3

Term Assumption: Unlimited

Compliance Method: The actual average volume of CW flow during the second five years of the certification will be determined and reported. Any uncompensated losses at the end of the current license period will be mitigated at a ratio of two acres of wetland restoration for each acre of uncompensated area of production foregone (APF).

Calculation:
Step 1: Determine the APF based on proposed CW flow profile over the remaining term.

Avg. APF = 59.3 acres

Step 2: Calculate mitigation cost.

59.3 acres x $74,660/acre = $4,427,338

Step 3: Calculate the net present value of the maintenance costs over the 10 year term of the existing license assuming a 12% discount rate.

Annual Maintenance Cost = 59.3 acres x $784/acre-year = $46,491 per year
$NPV_{@\,12\%}$ of 10 years maintenance = $262,686

Step 4: Total the amounts.

Mitigation Fee = $4,427,338 + $262,686 = $4,690,024

HBGS Mitigation Proposal - Option 4b

Operational Assumption: A reasonable estimate of the shaped annual average volume of Circulating water flow assuming an unlimited license term.

Profile of Proposed Average Circulating Water Volume for Remaining Term:

% Operation	1st Qtr 15%	2nd Qtr 35%	3rd Qtr 80%	4th Qtr 25%	Annual 38.8%	APF (Acres)
CW Volume (MGD)	38.0	88.7	202.8	63.4	98.2	59.3

Term: Unlimited

Compliance Method: The average CW **flow** volume will be calculated and reported on an annual basis. Any uncompensated impacts will be paid annually at a mitigation ratio of one acre of wetlands restoration for each acre of APF exceeded.

Calculation:

Step 1: Determine the APF based on proposed CW flow profile over the remaining term.

Avg. APF = 59.3 acres

Step 2: Calculate mitigation cost.

59.3 acres x $74,660/acre = $4,427,338

Step 3: Calculate the net present value of the maintenance costs over the 10 year term of the existing license assuming a 12% discount rate.

Annual Maintenance Cost = 59.3 acres x $784/acre-year = $46,491 per acre
NPV @ 12% of 10 years maintenance = $262,686

Step 4: Total the amounts.

Mitigation Fee = $4,427,338 + $262,686 = $4,690,024

WBGS Mitigation Proposal - Option 5

Operational Assumption: The maximum permitted circulating water flow over the term of the existing license.

Profile of Maximum Circulating Water Volume:

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual	APF
% Operation	100%	100%	100%	100%	100%	(Acres)
CW Volume (MGD)	253.5	253.5	253.5	253.5	253.5	104

Term: Through September, 2011

Compliance Method: Not Applicable

Calculation:

Step 1: Determine the APF based on maximum permitted CW flow.

Avg. APF = 104 acres

Step 2: Adjust for the term of the certification by dividing by two. Any extension of the license in 2011 would require the second half of the restoration payment.

104 acres 12 x $74,660/acre = $3,882,320

Step 3: Calculate the net present value of the maintenance costs over the 10 year term of the existing license assuming a 12% discount rate.

Annual Maintenance Cost = 104 acres x $784/acre-year = $81,536 per year
$NPV_{@12\%}$ of 10 years maintenance = $460,697

Step 4: Total the amounts.

Mitigation Fee = $3,882,320 + $460,697 = $4,343,017
If extended in 2011: $4,343,017

Huntington Beach Generating Station Empirical Transport Model Estimates for Area of Production Foregone Using Seasonal Flow Reduction

August 14,2006

Prepared for:

Mr. Paul Hurt
AES Southland
Huntington Beach. CA

Prepared by:

Tenera Environmental
"141 Suburban Rd., Suite A2
San Luis Obispo, CA 93401
805.541.0310

Introduction

This report presents estimates of area of production foregone (APF) for entrainment effects of tlie I-IBGS using two different seasonal flow reductions. **A** previous report dated July 5,2006 presented APF values calculated using a different set of flow reductions. Tlie estimates presented in this report for nearshore taxa are compared with estimates calculated using a daily flow of 507,000,000 mgd that were presented in the HBGS Entrainment and Impingement Study Final Report (IM&E Report) (MBC and Tenera 2005). The APF estimates for gobies are based on the wetland areas presented in a previous report.

Methods and Results

Tlie average APF for nearshore sandy habitat was recalculated using only tlie taxa that primarily occur in the nearshore areas around I-IBGS as adults. The APF values in the previous report were calculated from tlie original P_M estimates and extrapolated source water areas. Separate P_M estimates were calculated by adjusting tlie intake volume of 253,500,000 mgd (959,602 m^3) using the following two different flow reduction scenarios:

Scenario	Quarter 1 % of Maximum	Quarter 2 % of Maximum	Quarter 3 % of Maximum	Quarter 4 % of Maximum
I	10	24	56	20
2	15	35	80	25

The entrainment estimates from the surveys in each of the periods were calculated using tlie adjusted flows and P_M estimated using the adjusted PE estimates based on the reduced flows. The APF calculation using the revised P_M estimates are presented in Table 1.

The calculation of APF for CIQ gobies involved recalculating the P_M estimate by including an estimate of the larval gobies in the estuarine habitats in the vicinity of the HBGS. The revised *ETM* estimate for CIQ gobies was calculated using *PE* estimates that incorporates both nearshore and estuarine area larvae. The estimate of APF for CIQ gobies was based on the adult habitat in the estuarine areas around the HBGS. The revised values are presented in Table 1.

Table 1. APF values calculated from *ETM* model estimates based on three different flow reductions from 253,500,000 mgd. The *ETM* estimate from the 2005 316(b) Demonstration Report were calculated using an intake volume of 507,000,000 mgd.

Taxa	P_M Alongshore from Report	P_M Flow (10,24,56,20)	P_M Flow (15,35,80,25)	Alongshore Displacement (km)	Area Width (km)	APF Report Estimates (acres [km^2])	APF flow (10.24.56.20) (acres [km2])	APF Flow (15,35,80,25) (acres [km2])
Estuarine Taxon - source water includes estuarine areas				Area (acres [km^2]) =				
unid. gobies	0.0090	0.001 7	0.0024	3397.78 (1375.04)		30.68 (0.12)	5.74 (0.02)	8.19 (0.03)
Coastal Taxa								
spotfin croaker	0.0029	0.0005	0.0007	16.9418	4.45	54.77 (0.22)	9.31 (0.04)	13.41 (0.05)
queenfish	0.0063	0.0018	0.0025	84.8827	4.45	584.3 (2.36)	164.28 (0.66)	234.28 (0.95)
white croaker	0.0071	0.0008	0.0011	47.8364	4.45	374. (1.51)	42.08 (0.17)	59.97 (0.24)
black croaker	0.0012	0.0003	0.0005	19.4240	4.45	25.42 (0.1)	7.05 (0.03)	10.04 (0.04)
blennies	0.0077	0.0010	0.0013	12.8190	4.45	108.26 (0.44)	13.53 (0.05)	17.76 (0.07)
diamond turbot	0.0058	0.0006	0.0007	16.9325	4.45	107.62 (0.44)	10.24 (0.04)	13.03 (0.05)
California halibut	0.0025	0.0004	0.0005	30.9100	4.45	84.97 (0.34)	12.24 (0.05)	16.99 (0.07)
Cancer megalops	0.0107	0.0026	0.0037	26.5015	4.45	311.81 (1.26)	76.06 (0.31)	108.99 (0.44)
Average for Coastal Taxa					Average =	206.39 (0.84)	41.85 (0.17)	59.31 (0.24)

September 25,2006

Hand-Carried
Mr. Terry O'Brien, Deputy Director
Systems Assessment & Facilities Siting Division
California Energy Commission
1516 Ninth Street, MS-16
Sacramento, CA 95814

Transmitted Via Facsimile (714) 374-1495 & U.S. Mail
Mr. Eric Pendergraft, Plant Manager
AES Huntington Beach
21370 Newland Street
Huntington Beach, CA 92646-7612

Other Interested Parties

Dear Messrs. O'Brien and Pendergraft:

After consideration of the recent proposals from AES concerning appropriate mitigation for the Huntington Beach project and the rest of the record in this case, I am writing to request that the parties in this proceeding discuss at today's staff workshop, and be prepared to comment at the California Energy Commission's Wednesday, September 27, 2006, Business Meeting on a mitigation package that would be based on the actual operating history for the first five years of the project, and the full permitted level of operation for the five year extension of the license that is under consideration.

Sincerely,

JEFFREY D. BYRON, Commissioner
Associate Member of the Siting Committee

Cc: Commissioners
Jackalyne Pfannenstiel
James D. Boyd
John L. Geesman
Arthur H. Rosenfeld