

AES Huntington Beach

“Lighting Up California”





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Topics Covered

- Background
- Regulatory Developments Impacting BIO-5
- Determination of Significant Impacts
- Restoration Scaling
- AES Proposal for Addressing HBGS BIO-5



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Background

- AES applied for retool of HBGS Units 3 and 4 in 2001 in response to energy crisis.
- The Governor issued an Executive Order that allowed expedited power plant licensing.
- AES completed all normal certification requirements in an extremely compressed time frame
- Certificate granted and Units 3 and 4 became operational in January 2003 and August 2003
- Condition BIO-4 required AES to provide \$1.5 million to evaluate impacts of impingement and entrainment
- BIO-5 required mitigation of significant impacts to one or more species of coastal fish



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Condition BIO-4

- **BIO-4.** The project owner will provide a check for \$1,500,000 (One million and five hundred thousand) to the Center for Natural Lands Management to establish the Huntington Beach Generating Station Trust Account to be used to fund the project's impingement, entrainment, and source water sampling studies. The CEC will authorize the project owner's expenditures from the fund for the field study protocol development and implementation (impingement, entrainment and source water sampling), data analysis, draft and final report preparation, and implementation of mitigation measures.



Condition BIO-5

- **BIO-5.** If the entrainment and impingement study determines that significant impacts to one or more species of coastal fish is occurring, the project owner will provide funds for mitigation/compensation for impacts to Southern California Bight fish populations. In consultation with the project owner, those funds should be used for such things as tidal wetlands restoration, creation of artificial reefs, or some other form of habitat compensation that is sufficient to fully address the species impacts identified in the final report required by Condition of Certification **BIO-4**, above. The CEC CPM in consultation with the project owner and state, federal and local resource agencies will determine the amount and final application of those funds. When appropriate mitigation is determined, a Memorandum of Understanding (MOU) will be prepared by the project owner and signed with the entity that will receive the compensation funds. The MOU will clearly identify acceptable uses of the funds, including an accounting of how the funds will be spent.



- Impingement and entrainment studies were conducted in 2003 and 2004.
- The study methodology was agreed to and monitored by a Biological Resources Research Team (BRRT).
- Final impingement and entrainment report issued in April, 2005
- Based on study results, CEC Staff issued a report of recommendations on July 14, 2006 (Report).



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AES Will Address Entrainment Losses

- AES disagrees with the Report's conclusion on significant adverse impacts.
- AES disagrees with the methods used to estimate the amount of restoration necessary to compensate for losses.
- Nevertheless, AES is committed to compensate for actual and expected entrainment losses.



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Regulatory Developments Impacting BIO- 5



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Significant New Developments that Impact BIO-5

Significant events have transpired since BIO-5 was written:

- EPA issued the final 316(b) Phase II Rule (Rule) on July 7, 2004 requiring HBGS to reduce impingement and entrainment.
- Rule's use of restoration measures has been challenged.
- California SWRCB issued a draft scoping document for 316(b) that requires use of technologies and/or operational measures, and limits the use of restoration measures.



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Significant New Developments that Impact BIO-5

- As proposed, AES would have to install additional technology and operational measures to address Unit 3 and 4 entrainment losses.
- Once additional technology and operational measures are implemented it would substantially reduce or eliminate the need for additional mitigation.



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Determination of Significant Impacts



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BIO-5 Requirement

BIO-5 states:

“If the entrainment and impingement study determines that **significant impacts to one or more species of coastal fish** is occurring, the project owner will provide funds for mitigation/compensation for impacts to Southern California Bight fish populations.”



BIO-5 Requirement Results

- The report did not identify a significant impact to any of the fish or shellfish species addressed in the study overseen by BRRT.
- Losses to the target species, based on the empirical transport model (ETM), were determined to be significantly less than 1%
- These losses were much less than found at other generation projects licensed in the same time frame.



The Report Determination Conclusions

The Report states significant impacts have occurred as a result of:

- Loss of native fish habitat
- Impacts to threatened and endangered species
- Substantial degradation of the environment
- “Contribution” to significant cumulative effects on coastal species



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There Is No Loss of Native Fish Habitat

- Current data and information do not support a loss of fish habitat.
- Studies in California at SONGS and at several power plants on the east coast have shown OTC to have no significant effects on phyto- and zooplankton populations.
- The final SONGS report from the independent Marine Review Committee states unequivocally “no substantial changes have occurred in the zooplankton”. In fact, there were increases in relative concentrations of phyto and zooplankton near the power plant.



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There Is No Loss of Native Fish Habitat

Reasons for lack of impacts on phyto and zooplankton include:

- Unlike fish larvae, other planktonic forms are more tolerant of OTC.
- Natural mortality rates for primary and secondary producers are extremely high. The lifespan of most phytoplankton is measured in days and for zooplankton in weeks.
- The entrained organic biomass associated with fish and shellfish larvae is not lost to the system. Any plankton lost by OTC continues to provide food for organisms in the system including larval fish.



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There Is No Loss of Native Fish Habitat

- The water used for cooling is returned to the ocean as available fish habitat.
- Studies conducted in the vicinity of cooling water discharges have documented these are productive areas.
- Organisms passing through the OTC are returned for use as food.
- Contrary to the claims in the Report, the CEC 2005 white paper recognizes that impacts on non-larval planktonic forms is an area in need of research.



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There Are No Impacts to Any Threatened or Endangered Species

- The Report documents that entrainment poses no threat to protected species of fish and shellfish.
- The Report suggests that since brown pelicans and California least terns eat anchovies and western snowy plovers eat sand crabs these species are impacted but the significance of this risk is not quantified (Note: only **2 sand crab megalops** were collected).



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There Are No Impacts to Endangered or Threatened Bird Species

- There is less than 0.5% loss of northern anchovy larvae at maximum flow for Units 3 and 4.
- Annual losses for northern anchovy ranged from 304,125 to 53,490 adults. The average equates to 850 lbs of food per year (i.e. less than 17 – 50lb bags) over some 340 acres.
- This does not constitute a significant food loss threat to the brown pelican and California least tern.



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There is No Substantial Degradation of the Environment

- As discussed previously there is no evidence to support a loss of functional habitat that would result in substantial degradation of the environment.
- Although the form of the biomass is altered during transit through the cooling water system there is evidence of increased productivity at the cooling water discharge based on SONGS studies.



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No Evidence of Significant Cumulative Impacts

- The IM&E Study did not determine the significance of cumulative losses but the Report concluded cumulative impacts were significant.
- This is an arbitrary and incorrect interpretation that:
 - suggests any use or impact to coastal waters would not meet CEQA guidelines.
 - no assessment of the significance of the incremental risk is necessary.
 - was rejected by the Commission during the El Segundo retool project.



- No technical data or information has been provided to support a determination of significant impacts to one or more species of fish.
- The BRRT approved study determined losses were less than 0.5% to entrainable life stages, which is not significant.
- The Report statements made in reference to impacts using CEQA guidelines are not consistent with available data and do not support a finding of significant impact.



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Restoration Scaling



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Report's Proposed Mitigation Approach

- A Huntington Beach Wetlands Conservancy wetland restoration project has been identified as a suitable site for mitigation of HBGS entrainment losses.
- The Report's proposed scaling for restoration is based on use of the area of production foregone (APF) method.
- The method uses estimates of coastal wetland larval fish production (i.e. observed densities of goby larvae in those habitats) to estimate the number of acres of such wetlands to produce enough larvae to offset entrainment losses.
- The Report estimates that 104 acres of wetlands at a cost of \$7,956,000 are necessary to compensate for Unit 3 and 4 entrainment losses.



- AES fully agrees that mitigation of coastal wetlands is a reasonable means to address entrainment losses
- However, AES disagrees with the multiple unnecessarily conservative assumptions used to estimate the amount of mitigation necessary.



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Mitigation Assumption Omissions

- High natural mortality rates not considered (98% - 99% for gobies and even higher for other species such as croakers and anchovies).
- The Report assumes 100% of gobies are returned to down coast wetlands when only a small number are likely to return.
- The Adult Equivalent Loss Model used in the BRRT approved study, accounts for high natural mortality rates:
 - While it is recognized that this tool has limitations, there are methods to expand its utility for decision making.
 - These results should not be ignored.



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Mitigation Assumption Omissions

The Report does not consider:

- the biomass resulting from entrainment is still available for fish production to the coastal system.
- each acre of wetlands will produce many species of larvae in addition to gobies
- the 10 year license period granted for Units 3 and 4
- the actual flows for first 5 years of license
- additional technology or operational controls

	Duke Energy Morro Bay Power Plant	Duke Energy Moss Landing Power Plant	AES Huntington Beach Generating Station
Study Years	2000	1999-2000	2003-2004
Annual Larval Entrainment (fishes)	526,086,000	484,000,000 (8 target taxa comprising 95% of the total larvae collected)	120,599,723 (53 taxa) assuming Units 3&4 at actual flow
Annual Larval Entrainment (shellfishes)	13,577,344 (Cancer crab megalops larvae)	20,500,000 (Cancer crab megalops larvae)	2,737,567 (Cancer and sand crab megalops larvae, spiny lobster phyllosome larvae) assuming Units 3&4 actual flow
Average ETM Estimate (shellfishes)	2%	10%	<0.3%
Average ETM Estimate (fishes)	10%	13%	<0.3%
Area of Production Foregone (acres)	391 – 759 wetland acres (Average = 575 acres)	390 wetland acres	104 nearshore coastal acres 15.35 wetland acres (only U3&4)
Cost (total)	\$12,500,000	\$7,000,000	\$7,956,000
Project Lifespan	Indefinite	Indefinite	10 years



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Need to Quantify Full Value of Wetlands

- The Report describes the numerous environmental benefits provided by wetlands, but does not adequately account for benefits in the scaling that include:
 - removal of urban run-off pollutants and improved health of near shore ecosystem
 - export of organic material for use in the food chain
 - habitat that is provided for birds and other wildlife
 - public environmental education benefits



Summary of Mitigation Scaling Issues

- Multiple assumptions were inappropriate or omitted.
- Recommendation is inconsistent with similar recent repowering projects.
- Other potential entrainment controls due to new or proposed regulatory requirements were not considered.
- The term of the license was not considered in determining proposed mitigation.



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AES Proposal for Addressing BIO-5



- In spite of disagreement with the Report's significant impact determination, AES is proposing to providing appropriate mitigation to fully address HBGS entrainment losses.
- The AES proposal is directly tied to Unit 3 and 4 operations, new regulatory developments and ensuring that mitigation decisions are based on the best data and information available.



AES proposes the following 5 Point Plan for moving forward:

- Point 1 – Use of Actual Flows
- Point 2 – Recognize and consider technologies and/or operational measures that may be installed during the license period
- Point 3 - Mitigate based on entrainment losses over the term of the license
- Point 4 – Mitigate now for past and near term losses
- Point 5 – Finalize BIO-5 compliance mitigation at the end of the license



AES Proposal – Point 1

Base HBGS entrainment mitigation on actual rather than maximum flow.

- AES will maintain records to document annual Unit 3 and 4 pump operation.
- These records in combination with 2003/2004 entrainment data will be used to quantify annual entrainment losses.
- There is currently available operating data for the first 4 years.



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Actual Operating Statistics

Units 3&4 Operating Factors

	2002	2003	2004	2005	Avg.
1st Qtr	0.0%	3.1%	20.6%	12.7%	9.1%
2nd Qtr	0.0%	12.8%	28.6%	33.0%	18.6%
3rd Qtr	0.0%	53.4%	51.6%	75.0%	45.0%
4th Qtr	0.0%	48.7%	39.1%	10.1%	24.5%
Total	0.0%	29.7%	35.1%	32.8%	24.4%



AES Proposal – Point 2

- No requirement to mitigate for entrainment losses addressed with technologies and/or operational measures.
- Depending on the outcome of 316(b) litigation AES may be in a position to address additional mitigation as appropriate.



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AES Proposal – Point 3

Base mitigation on operations during the license period (9/2001 – 9/2011)

- AES mitigation of entrainment losses for Units 3 and 4 will be limited to the license period for these Units.



Mitigate now for past and near future losses (i.e. prior to potential new technology requirements)

- AES agrees to provide wetland mitigation now to compensate for losses through 2008 (i.e. prior to the period when additional entrainment controls may be required).



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AES Proposal – Point 5

Additional mitigation, if necessary, will be made based on any uncompensated losses at the end of the 10 year license period.



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Questions?