City of Huntington Beach

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DEPARTMENT OF ECONOMIC DEVELOPMENT

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April 21, 2011

Honorable Jerome Horton, Chairman
Honorable Betty T. Yee, Member
Honorable George Runner, Member
Honorable Michelle Steel, Member
Honorable John Chiang, State Controller
California State Board of Equalization

RE: AES Huntington Beach, LLC Power Generating Facility
State Assessee Company No. 1102
2011 Valuation

In 2006, our City appeared before the Board to express the City's desire that the valuation of the AES Huntington Beach power plant be accurate and up-to-date. The City's consultant, Van Horn Consulting of Orinda, California, presented a review of the plant's valuations and methodologies.

This year, the City once again retained Van Horn Consulting ("VHC") to perform an analysis to be considered for your 2011 valuation. I have attached a copy of VHC's PowerPoint presentation, which makes the following findings and recommendations for the State Board of Equalization ("BOE") to consider in its 2011 assessment:

1) Life expectancy of the plant through, at least, 2020:

- The California Energy Commission (CEC) has extended the AES-HB license to 2016, with an extension to the end of 2020 expected in 2012.
- AES has publicly announced its intentions to repower and not retire the AES-Huntington Beach (AES-HB) plant.
- The proposed Poseidon desalination plant plans to have its Huntington Beach facility in operation by 2014, relying on AES-HB power.
- Because the plant is needed for reliability of the electric grid, the State Water Board has allowed the AES-HB plant to operate through 2020 before eliminating Once Through Cooling.
- The recent sale of AES-HB generating units 3 & 4 to Edison Mission Huntington Beach is unequivocal evidence that the plant will continue to operate until 2020 and beyond. It is also evidence of the higher valuation of these generating units by a willing buyer.

2) The existing plant's value based on future income is predominantly from increasing capacity payments, not energy sales:

Calculation of income should recognize that AES-HB capacity payments will jump up when existing contracts end. The purchase of units 3 & 4 by Edison Mission and statements in CPUC filings by Southern California Edison and market information strongly indicate that capacity values will exceed $55/kW-yr by 2015.

- About 90 percent of plant revenues from 2006-2010 came from payments for capacity, not energy.
- AES-HB capacity revenues from 2006-2010 were about $43/kW-year. This is lower than the California Independent System Operator's (CAISO's) Capacity Procurement Mechanism price of $55/kW-year, which was approved by FERC and became effective April 1, 2011.
- Southern California Edison is applying $55/kW-yr as the short-term capacity price in its Long Term Procurement Planning (LTPP) before the California Public Utility Commission (CPUC).
- In a 2010 proceeding, the California Public Utility Commission estimated the 2012-2014 avoided cost of new capacity to be about $150/kW-year.
- Market prices for new electric generating capacity in California will be higher than $150/kW-year.

3) Obsolescence penalties based on energy sales, as typically applied in the Replacement Cost New Less Depreciation valuation approach, may overstate the penalties for those power plants that rely predominantly on payments for capacity more than payments for energy.

- Almost 90 percent of the AES-HB plant's revenues come from capacity payments, not from the sale of energy. If energy sales do not cover the variable costs of generation, the generating units will not be dispatched. Hence, the BOE's cost penalty should be based only on the loss of marginal profits for each MWh generated, when compared to a more efficient, replacement power plant.

Our recommendation for the January 1, 2011 valuation is based 90 percent on our estimated value from Income (the capitalized earnings approach) and 10 percent on the Replacement Cost New less obsolescence approach. Our findings indicate that the valuation of the AES-HB plant on January 1, 2011 should be **$135 million**. This is a minimum value, based on operating the current facilities through 2020. AES will continue to operate the plant through 2020 or until repowering or sale of the generating units provides even greater value, which may occur well before 2020.

Upon your review of this information, our staff and Van Horn Consulting would be more than happy to set up a conference call to discuss all of the findings and recommendations. If you have any further questions, please feel free to contact Andy Van Horn at (925) 254-3358 or via email andy.vanhorn@vhcenergy.com or Tina Krause, our Real Property Agent, at (714) 374-1529 or email tkrause@surfcity-hb.org. In addition, we also plan to speak at the public comment portion of the Board meeting in Sacramento on April 26, 2011.

Sincerely,

Fred A. Wilson, City Manager

FAW

c: Bob Hall, Deputy City Manager
Stanley Smalewitz, Director, Economic Development
Kellee Fritzal, Deputy Director, Economic Development
Tina Krause, Real Property Agent
Lori Ann Farrell, Finance Director
Doris Powell, Assistant Project Manager
Andy Van Horn, Ph.D., Principal, Van Horn Consulting
Edward Remedios, Ph.D., MBA, Van Horn Consulting

Pricing References & Recommendations:

2011 Property Tax Valuation of the AES-Huntington Beach Power Plant

City of Huntington Beach

April 21, 2011

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Edward Remedios, Ph.D., MBA
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Van Horn Consulting
Orinda, CA 94563
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AES-Huntington Beach Power Plant

Key Results

- The AES Huntington Beach power plant has a value on January 1, 2011 of $135 million, based 90 percent on projected Market Income and 10 percent on Replacement Cost "percent good" less obsolescence.
- The Market Income approach indicates a value of $91 million, assuming operation of current plant facilities through 2020, including a land reversion value of $12.3 million and implementation of Once Through Cooling requirements after the end of 2020, with no terminal plant value.

Key Observations

- The California Energy Commission (CEC) has extended the AES-HB license to 2016 with extension to the end of 2020 expected in 2012.
  - AES announced intentions are to repower, not retire.
  - The Poseidon desalination company hopes to have its HB facility in operation in 2014, relying on AES-HB power.
  - Southern California Edison (SCE) says it will need to contract for new capacity in and after 2015.
- Because the plant is needed for reliability of the electric grid, the State Water Board has allowed the AES-HB plant to operate through 2020 before eliminating Once Through Cooling.

Key Observations cont'd

- Operation of the current plant thru 2020 represents the lowest valuation for this plant. When capacity prices rise sufficiently, repowering will occur and add more value to the plant.
- The recent sale of AES-HB generating units 3 & 4 to Edison Mission Huntington Beach is unequivocal evidence that the plant will continue to operate until 2020 and beyond.
- The recent sale to Edison Mission HB also demonstrates the higher valuation of these generating units plant by a willing buyer in the market.

Key Observations cont'd

- About 90 percent of plant revenues from 2006-2010 came from payments for capacity, not energy.
- AES-HB capacity revenues of about $43/kW-year are lower than the California Independent System Operator's (CAISO's) Capacity Procurement Mechanism price of $55/kW-year, which was approved by FERC and became effective April 1, 2011.
- The California Public Utility Commission (CPUC) estimates the 2012-2014 avoided cost of new capacity to be about $150/kW-year.
- After 2015 future prices for new capacity in California will be higher than $150/kW-year.

Key Observations cont'd

- In 2010 the California Energy Commission (CEC) developed detailed costs for new generation technologies and released a publicly available cost model: CEC_COG_Model_Version_2.02-4-5-10.xls
- Based on the 2010 CEC Cost of Generation model, a current assessed land value of $33.4 million, AES-HB replacement by a Combined Cycle generator with 10 years remaining operating life to 2020, and by applying differing percent good and obsolescence factors for units 1 & 2 than for units 3 & 4, the Replacement Cost approach indicates a January 1, 2011 replacement value for AES-HB of $532 million.

90/10 Results of VHC's 2011 Valuation of the AES Huntington Beach Plant w CCGT

Case Description	Market Income Approach to 2020, Zero Terminal Site Value	Replacement Cost for a CCGT, Percent Good & Method 2 for Energy Revenues	90% Market Income Value with Zero Terminal Site Value + 10% Replacement Cost with CCGT
Plant Value	78.4	499	Recommended 90/10 Value
Site Value	12.3	33	
TOTAL VALUE	$90.7 million	$532 million	$135 million

AES HUNTINGTON BEACH BACKGROUND INFORMATION

The AES-Huntington Beach Power Plant

- AES operates 904 MW electric generating capacity at four steam units of original vintage ~ 1960.
- In 1998 AES purchased the plant for ~ $100 million.
- In 2001 AES received expedited certification from the California Energy Commission (CEC) to retool units 3 & 4 by 2003 and invested ~ $225 million.
- In 2010, the CEC extended the certification expiration date for Huntington Beach Units 3 & 4 from September 30, 2011 to September 30, 2016 with the potential to extend to December 31, 2020, if an AFC is submitted on or before June 30, 2012, and deemed adequate by December 31, 2012.

Additional Background Information

- If the AFC is not submitted by the June 12, 2012 deadline, AES will submit a closure plan and cease operation of Units 3 and 4 by September 30, 2016.
- The generating units at AES Huntington Beach were contracted to BE CA LLC, owned by JP Morgan.
- From 2006 to 2010 AES received about 88 percent of its revenues from payments for capacity, the rest for energy and performance.
- As shown in references cited in this briefing, future capacity prices will be higher than AES-HB contract prices from 2006-2010.

Additional Background Information

- The recent sale of AES-HB generating units 3 & 4 to Edison Mission Huntington Beach is unequivocal evidence that the plant will continue to operate until 2020 and beyond.
- This sale would not have occurred if the plant were to be shut down before 2020.
- The sale to Edison Mission demonstrates a higher valuation of these generating units by a willing buyer in the market.
- Repowering, which will increase the plant's value, is likely to occur, even before 2020. However, VHC's valuation assumes operating only the current generating units through 2020.

Additional Background Information

- Replacement costs of new Combined Cycle and Combustion Turbine generator's are best indicated by the CEC's 2009 Cost of Generation study, adjusted for 2009/2010 price changes by applying year-to-year changes in generic prices.
  - Some sources of cost information, like Gas Turbine World (GTW), exclude important balance of plant costs (CCGT) or represent only "equipment costs" (Simple cycle CT).
  - Engineering, Procurement and Construction (EPC) costs can add 60 to 100% to "equipment costs."
  - California-specific costs differ from generic costs.
  - 2010 prices are assumed to be 10% less than in 2009.

Additional Background Information

- GTW's 2010 CCGT costs are for a bare bones turnkey plant without some Balance of Plant (BOP) costs necessary for a California location.
- GTW's 2010 CCGT costs exclude:
  - Land costs,
  - Permitting costs,
  - Financing,
  - Escalation,
  - Interest during construction, and
  - Interconnection costs.
- GTW's 2010 costs assume non-union labor.
- Hence, VHC recommends applying the CEC's costs, which are more detailed and specific to California.

REFERENCES & SUPPORTING ASSUMPTIONS FOR VHC'S 2011 VALUATION

2011 Valuation Should Assume Operation of AES Huntington Beach through 2020

- AES will continue to operate the Huntington Beach generating units through 2020 or until repowering or sale of the plant provides even greater value to AES.
- Energy Today news article: "The power plants that make up the AES Southland network are strategically located along the coast in the Southern California region. Each facility operates in an area that's within close proximity to a key load center, which, according to Eric Pendergraft, [President of AES Southland] allows the state to integrate a higher percentage of renewable resources into its generation portfolio. He explained that electric grids require a certain amount of local generation if they are to operate reliably."[1]
- AES website: "Now we're working to update this facility once again by developing plans that would result in the installation of new, more efficient, flexible and attractive power generating facilities."[2]

1 http://www.energytodaymagazine.com/index.php?option=com_content&view=article&id=7086:aes-southland-a-focused-effort&catid=136:renewables&Itemid=180 March 30, 2011.

2 http://www.aescalifornia.com/content/new-projects, April 6, 2011

AES-HB has acknowledged its valuable asset and likely increases in local taxes

- AES website: "We're currently developing plans to replace our existing natural gas power plants in Long Beach, Huntington Beach and Redondo Beach with modern, more attractive and far more efficient facilities, which will take up less space at the sites. Modern and more flexible natural gas plants are critical to integrate renewable energy into the electric grid... Our plans to redevelop our power plants would likely increase the local taxes we pay, and allow us to continue providing jobs."[1]
- The negotiated sale to Edison Mission demonstrates the plant had increased value on January 1, 2011.

[1] http://www.aescalifornia.com/content/new-projects, April 6, 2011

Future Capacity Payments Will Be Higher than Payments Under Current Contracts

- On December 1, 2010, the California Independent System Operator (CAISO) filed a proposal at FERC in Docket No. ER11-2256-000 to increase its Capacity Procurement Mechanism price from $41/kW-year to $55/kW-year.
- The CPM is a backstop capacity procurement mechanism that allows the ISO to procure existing capacity to address a deficiency (like retirement) or supplement resource adequacy (RA) procurement needed to maintain reliability.
- FERC allowed the $55/kW-yr price, effective April 1, 2011. A technical conference will be held, since various parties believe this price is too low. The CPM price is well below the Cost of New Entry.

FERC Ruling on the CAISO Capacity Procurement Mechanism 134 FERC ¶ 61,211 March 17-2011 FERC Docket No. ER11-2256-000 2b44c8174d090.pdf

JP Morgan Markets HB Capacity and Energy, Increasing Plant Value

- Bear "D" (Formerly Williams "D") Contract with SCE
  - On October 25, 2007, the power assets of Williams Power were assigned to BE CA LLC (Bear CA), a subsidiary of Bear Stearns Companies Inc. (Bear Stearns). On May 29, 2008, JP Morgan Chase & Co. (JP Morgan) acquired the Bear "CA" assignment through its acquisition of Bear Sterns. On October 8, 2008, Bear CA submitted an FSP [Fuel Supply Plan] for the 2009 calendar year. SCE evaluated the proposed FSP and recommended that DWR self-supply the natural gas from the spot market.
  - Bear CA submitted its FSP for the 2010 calendar year on October 9, 2009. SCE evaluated Bear CA's proposed plan and recommended that DWR reject it and authorize SCE, as DWR's limited agent, to acquire gas supplies from the spot market. SCE's recommendations are described in SCE's filed advice letters for GSP XIII and GSP XIV.

Contract Terms Affect Value – SCE Contracts for AES-HB Changed in 2009

- AES Huntington Beach LLC 5
- On April 6, 2009, AES Huntington Beach LLC ("AESHB") and SCE amended their EEI master power purchase and sale agreement, dated December 23, 2009, and their master power purchase and sale agreement amended and restated confirmation letter, dated April 25, 2006. The amendment replaces references in the April 25, 2006 confirmation letter to "forward schedules," "minimum load cost compensation," and "must offer waiver denial" with new provisions incorporating the terminology and provisions in the revised CAISO MRTU tariff. The CAISO-initiated start provisions were also deleted, and all start-ups are now treated as SCE dispatches. Copies of the amendments are provided in the appendix to this chapter.
- BE CA LLC 14 Now Sells AES Power
- SCE and BE CA LLP amended their master power purchase and sale agreement confirmation letter to memorialize the parties' understanding and practice regarding the calculation of the current mark-to-market value. The units subject to the amendment are Alamitos 1, 2, 3, 4, 6, Huntington Beach 2, and Redondo 5, 6, 7, 8. Copies of the amendments are provided in the appendix to this chapter. The parties amended their master power purchase and sale agreement confirmation letter to memorialize their understanding regarding certain issues following the implementation of MRTU, including billing, scheduling, delivery of electricity, and other contractual matters.

SCE, Energy Resource Recovery Account (ERRA), Reasonableness of Operations, 2009, Chapters I-VIII, PUBLIC VERSION, p 139.

BE CA LLC Believes Short-term Capacity Penalties Should Be Raised

b. **J.P. Morgan Recommends That The Penalty Rate For Local Procurement Deficiencies Be Set Higher Than That For System Procurement Deficiencies**

In its earlier comments in this proceeding, J.P. Morgan recommended that the CPUC appropriately balance the RA deficiency penalty structure to reflect the fact that local RA procurement deficiencies are of greater importance - from a reliability perspective - than system RA procurement deficiencies.

J.P. Morgan supported Energy Division staff's proposal to, among other things, set the penalty rate at $9.99/kW-month for local procurement deficiencies not replaced within five business days and at $6.66/kW-month for system procurement deficiencies not replaced with five business days.

COMMENTS OF J.P. MORGAN VENTURES ENERGY CORPORATION AND BE CA LLC ON PROPOSED DECISION OF ADMINSTRATIVE LAW JUDGE GAMSON ADOPTING LOCAL PROCUREMENT OBLIGATIONS FOR 2011 AND FURTHER REFINING THE RESOURCE ADEQUACY PROGRAM
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CPUC Cost Estimates for New Capacity

Values from the CPUC's 2010 Analysis of Avoided Supply Costs For Demand-side Resources. Values Are Expected to Increase in Future Years.

Annual Inputs		
2012	2013	2014
$152.77	**$149.67**	**$148.67**
$55.19	$56.29	$57.42
$61.30	$66.82	$70.72
$9.54	$10.69	$12.76

New Generation Capacity Value ($/kW-Yr)

T&D Capacity Value ($/kW-Yr.)

On-Peak Avoided Energy Cost ($/MWh)

GHG Value ($/MWh)

Once Through Cooling Requirements Will Increase Capacity Needed in the LA Basin

Selected information from: "THE ROLE OF AGING AND ONCE-THROUGH-COOLED POWER PLANTS IN CALIFORNIA—AN UPDATE," California Energy Commission, February 2010.

"The retooled Units 3 and 4 at Huntington Beach, taken out of service in 1995, are not considered "aging" for this report."

Figure 14 shows that energy generated by OTC units in the Los Angeles Basin LRA decreased approximately 57 percent from 2002 to 2008. Huntington Beach Units 3 and 4 are shown separately. Although they were taken out of service in the mid 1990s, they were retooled several years later and then placed back into service; therefore, they are used more than typical aging facilities.

Figure 15 also illustrates the increased reliance on OTC units during the summer. While this was less the case in 2008 than six years earlier—largely a result of the construction of new, more efficient power plants throughout Southern California—it remains true today. The aggregate capacity factor for the OTC units in February—April 2008 was less than 3 percent; the corresponding figure for August—October was slightly less than 20 percent. While much of the energy produced by OTC units in the Los Angeles Basin LRA during the summer is economic—it may be the least-cost energy available during high load hours, a portion of it follows from local capacity needs. As loads in the entire SCE area rise, an increasing amount of OTC capacity in the LRA is needed to meet thermal and voltage constraints. At loads from 22,000–23,000 MW, 1,360 MW or more are needed from the OTC units in the LRA, when loads exceed 24,000 MW, more than 2,800 of MW capacity from OTC units must be available.

In 2008, OTC unit capacity factors in the California ISO portion of the LA Basin ranged from 1 percent (Redondo Beach 6) to **28 percent (Huntington Beach 1). Units at Huntington Beach and three of the units at Alamitos (Units 3–6) provided 73 percent of the energy from OTC units in the Los Angeles Basin.**

The Cost of Short-term Capacity - SCE

- SCE's March 25, 2011 filing at the CPUC for its Long-Term Procurement Plan states:

> 9. Cost of Capacity
> In the absence of a transparent capacity market with published prices, **SCE assumes that it will fill its short capacity position at the proposed Capacity Procurement Mechanism (CPM) price of $55 per kW-year. For purposes of its AB 57 Bundled PP, SCE assumes that the market cost of Local Area Reliability capacity is the same as system RA capacity.**

SCE's AB 57 BUNDLED PROCUREMENT PLAN
APPENDICES (PUBLIC VERSION), page K-11, March 25, 2011.

SCE Will Need New Capacity and Energy By 2015

D. CPUC Standardized Planning Analysis Results

1. Capacity and Energy Need Determination

Confidential Information is Blacked Out in this Public Document

Table B-5
CPUC Standardized Planning Analysis - Capacity Resource Accounting Table (MW)
(Confidential)

PEAK LOAD CALCULATIONS (MW):	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Forecast Total Peak-Hour 1-in-2 Demand	[redacted]			20,528	20,407	20,333	20,177	20,088	20,056	19,943
Demand Response / Interruptible Programs (-)*	0	0	0	0	0	0	0	0	0	0
Firm LSE Peak-Hour Resource Requirement	[redacted]			20,528	20,407	20,333	20,177	20,088	20,056	19,943
CAPACITY SUPPLY RESOURCES										
SCE Owned Fossil Fuel Capacity	[redacted]									
SCE Owned Nuclear Capacity										
SCE Owned Hydroelectric Capacity										
Total Non-Renewable Qualifying Facility (QF) Capacity										
Capacity from Renewable Energy Contracts	1,615	1,818	2,492	2,552	2,706	2,717	2,733	2,761	2,761	2,904
Capacity from Other Bilateral Contracts	[redacted]			[redacted]						53
Short-Term and Spot Market Purchases				0	0	0	0	0	0	0
CAPACITY BALANCE SUMMARY										
Total: Existing and Planned Capacity	[redacted]			11,167	11,324	11,094	11,118	11,121	10,681	10,824
Firm LSE Peak-Hour Resource Requirement				20,528	20,407	20,333	20,177	20,088	20,056	19,943
Capacity Need **or (Capacity Surplus)**				9361	9083	9239	9059	8967	9375	9119

* Demand Response is included in the demand forecast

Note: Capacity Need line

SCE, AB 57 BUNDLED PROCUREMENT PLAN - ATTACHMENTS A and B to Testimony Of Southern California Edison. (PUBLIC VERSION) Before the Public Utilities Commission of the State of California Rosemead, California March 25, 2011. See pages A-7 and B-8. Confidential Data has been blacked out in this table.

Example: New Combined Cycle Costs

- CEC Cost of Generation Model
  - CEC_COG_Model_Version_2.02-4-5-10.xls
  - Costs were scaled to reflect 2009/2010 price changes and sizes.

Plant Type Assumptions (Select)	**Combined Cycle Standard - 2 Turbines, Duct Firing**
Financial (Ownership) Assumptions (Select)	**Merchant Fossil**
Ownership Type For Scenarios	**Merchant**
General Assumptions (Select)	**Default**
Base Year (All Costs In 2009 Dollars)	**2009**
Fuel Type (Accept Default)	Natural Gas
Data Source	*Aspen 5-23-09*
Start (Inservice) Year (Enter)	**2009**
Natural Gas Price Forecast (Select)	CA Average
Plant Site Region (Air & Water) (Select)	CA - Avg.
Study Perspective (Select)	To Delivery Point
Reported Construction Cost Basis (Select)	Instant

OUTPUT RESULTS

SUMMARY OF LEVELIZED COSTS
Combined Cycle Standard - 2 Turbines, Duct Firing

Start Year = 2009 (2009 Dollars)	**$/kW-Yr**	**$/MWh**
Capital & Financing - Construction	$172.85	$30.26
Insurance	$8.35	$1.46
Ad Valorem Costs	$11.36	$1.99
Fixed O&M	$9.52	$1.67
Corporate Taxes (w/Credits)	$56.84	$9.95
Fixed Costs	**$258.92**	**$45.32**
Fuel & GHG Emissions Costs	$418.13	$73.19
Variable O&M	$20.88	$3.66
Variable Costs	**$439.01**	**$76.85**
Transmission Service Costs	$29.74	**$5.21**
Total Levelized Costs	**$727.67**	**$127.38**
	$713.26	$124.86

Recommended 2011 Valuation

- The City of Huntington Beach and its consultant, Van Horn Consulting, recommend the following property tax value for the AES-HB Power Plant, including land and improvements:[1]
  - $**135** million, if the Replacement plant is a combined cycle gas turbine, or
  - $**117** million, if the Replacement plant is a combustion turbine.

[1] AES-HB has maintained confidentiality of some data relevant to determining the plant's value. The City's estimates utilize public information in AES filings, CPUC, CEC and FERC documents and reports. The recommended values are based 90% on Income/Capitalized Earnings and 10% on Replacement Cost New Percent Good Less Obsolescence.