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STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:

The Application for Certification for the CARLSBAD ENERGY CENTER PROJECT

Docket No. 07-AFC-6

CARLSBAD ENERGY CENTER LLC'S REBUTTAL TESTIMONY, WITNESSES, AND EXHIBITS

January 14, 2010

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STATE OF CALIFORNIA

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In the Matter of: **The Application for Certification for the CARLSBAD ENERGY CENTER PROJECT**	**Docket No. 07-AFC-6**

CARLSBAD ENERGY CENTER LLC'S REBUTTAL TESTIMONY, WITNESSES, AND EXHIBITS

Pursuant to the Committee's Revised Scheduling Order dated December 21, 2009, Applicant Carlsbad Energy Center LLC ("Applicant") herein provides Rebuttal Testimony, witnesses and exhibits in support of the Carlsbad Energy Center Project ("CECP").

I. BACKGROUND

Applicant filed Opening Testimony in support of CECP on December 15, 2009, which included Exhibits A-1 through A-7 (Opening Testimony for Air Quality, Land Use, Traffic & Transportation, Visual Resources, Cultural Resources, and Soil & Water Resources, respectively). Through this Rebuttal Testimony, Applicant has incorporated these exhibits into its formal exhibit list (attached hereto as **Exhibits 111 through 118**). Further, on December 15, 2009, Applicant presented witness declarations, which were attached to Applicant's Opening Testimony as Exhibits B-1 through B-23. These exhibits are now incorporated into Applicant's exhibit list as **Exhibits 119 through 141**. Additional exhibits to support Applicant's Rebuttal Testimony are included in the attached revised **Exhibit List** (see **Attachment A**).

II. REBUTTAL TESTIMONY

Below is a summary of Applicant's Rebuttal Testimony and related topics provided herein.

A. Air Quality

Applicant has reviewed the parties' Opening Testimony related to Air Quality. Applicant wishes to clarify how the air quality impact analysis for CECP demonstrates that CECP will not result in significant air quality impacts for any criteria air pollutant. In addition, the cumulative air quality and public health impact analyses conducted for the project demonstrate that there will not be any significant cumulative impacts to either air quality or public health. With regards to emission reduction credits (ERCs) proposed as mitigation for CECP air emissions, Applicant's Rebuttal Testimony explains the local and regional benefits associated with this mitigation, how Units 1 through 3 emissions data were properly used to determine the quantity of these offsets. Applicant's Rebuttal Testimony also provides responses to questions regarding emissions limits posed by Intervenor Power of Vision. Concerning global climate change impacts, Applicant responds to the parties' assertions regarding the impact of CECP greenhouse gas emissions. Applicant's Rebuttal Testimony regarding this issue is attached as **Exhibit 143.**

B. Land Use

Applicant has reviewed the parties' Opening Testimony related to Land Use and submits its Rebuttal Testimony to address the inaccuracies and misrepresentations in the City's Opening Testimony regarding the CECP's consistency with the Carlsbad General Plan and Zoning Ordinance, Agua Hedionda Land Use Plan, California Coastal Act, and the applicable Specific Plan and Precise Development Plan. Applicant also addresses the CECP's consistency with the South Carlsbad Coastal Redevelopment Plan and explains how the CECP includes extraordinary public purposes and benefits. Applicant's Rebuttal Testimony regarding this issue is attached as **Exhibit 147.**

C. Visual Resources

Applicant has reviewed the parties' Opening Testimony related to Visual Resources and wishes to clarify that the worst case I-5 widening scenarios are understood and accounted for, and Condition of Certification Vis-5 ensures that the proposed I-5 widening will not undermine adequate screening. Similarly, fire safety design requirements will not prevent any visual screening requirements. Contrary to the City's inaccurate visual simulations, the visual screening for CECP, with or without I-5 widening, ensures satisfactory views with less than significant adverse impacts. The visual impacts analyses is technically sound and accurate and demonstrates no significant adverse impacts. Applicant's Rebuttal Testimony regarding these issues is attached as **Exhibit 150.**

D. Cumulative Impacts

Applicant has reviewed the parties' Opening Testimony related to Cumulative Impacts. Contrary to the City's testimony, the FSA adequately addresses the cumulative impacts associated with the CECP, by analyzing the potential cumulative impacts of the CECP, the Carlsbad Seawater Desalination Plant, Caltrans' I-5 widening, the LOSSAN project, the City's sewer lift station and sewer replacement and upgrade projects, the Coastal Rail Trail, and the decommissioning of EPS Units 4 and 5. The potential cumulative impacts associated with these projects are discussed within the FSA analysis for each resource area for which the various projects could have a cumulative impact. Applicant's Rebuttal Testimony regarding this issue is attached as **Exhibit 146.**

E. Noise and Vibration

Applicant has reviewed the parties Opening Testimony related to Noise and wishes to point out that the ambient noise survey and CEC Staff's evaluation thereof is adequate. Further, gas turbine generators, heat recovery steam generators and ancillary equipment similar to that proposed for the CECP is not significantly different than equipment used at other power facilities. Next, the potential for reflections are addressed

as part of detailed design and do not hinder the projects ability to comply with the Conditions of Certification. Finally, CEC Staff's approach minimizes the potential for a cumulative noise concern resulting from the potential widening of I-5. Applicant's Rebuttal Testimony regarding these issues is attached as **Exhibit 148.**

F. Biological Resources

Applicant has reviewed the parties' Opening Testimony related to Biological Resources and wishes to clarify that CECP will replace Units 1–3 at the Encina Power Station, eliminating 225 million gallons per day of seawater intake flow from the Agua Hedionda Lagoon. CECP will not require the use of any additional seawater beyond what is already being used by EPS Units 4 and 5, which will continue operations. As a result, CECP will not result in any impingement and entrainment and elimination of the seawater intake flow for Units 1–3 will reduce the current levels of impingement and entrainment at the EPS. Applicant's Rebuttal Testimony regarding this issue is attached as **Exhibit 145**.

G. Worker Safety and Fire Protection

Applicant has reviewed the parties' Opening Testimony related to Worker Safety and Fire Protection and wishes to point out that the City has misconstrued the nature of the potential fire and hazardous materials emergencies at CECP. Further, the CECP as designed provides for adequate fire access, including road widths, and water supply for fire protection. Finally, the extended response times cited by the City do not create significant adverse impacts. Applicant's Rebuttal Testimony regarding these issues is attached as **Exhibit 152**.

H. Socioeconomics

Applicant has reviewed the parties' Opening Testimony related to Socioeconomics. CECP uses a small portion of the Encina Power Station property that is very constrained and challenging to use, and provides significant positive socioeconomic benefits for the city and the region. Specifically, Applicant's Rebuttal Testimony

demonstrates that CECP will produce construction jobs and significant tax revenue to the City of Carlsbad, the Carlsbad Redevelopment Agency and San Diego County as a result of the construction and operation of the CECP, and natural gas franchise fees. In addition, CECP will result in the concurrent decommissioning of the three oldest steam boiler units at EPS and will enhance the incorporation and penetration of renewable electrical energy generation supplies into the local grid. Applicant's Rebuttal Testimony also demonstrates that CECP conceptual plans for the Encina Power Station. Applicant's Rebuttal Testimony regarding this issue is attached as **Exhibit 149**.

I. Soil & Water Resources

Applicant has reviewed the parties' Opening Testimony related to Soil & Water Resources and wishes to clarify that CECP will eliminate 225 million gallons per day of seawater intake flow. CECP will not require the use of any additional seawater beyond what is already being used by EPS Units 4 and 5, which will continue operations. CECP will also exceed the State Water Resources Control Board Draft Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling dated November 23, 2009 ("Draft Policy") requirements for the reduction of the use of seawater. The amount of seawater from the EPS discharge stream proposed for use by the CECP represents a 98 percent reduction in water use from EPS Units 1-3, far in exceedance of the levels of reduction required by the Draft Policy. Applicant's Rebuttal Testimony regarding this issue is attached as **Exhibit 151**.

J. Alternatives

Applicant has reviewed the parties' Opening Testimony related to Alternatives. The CECP project objectives are sufficiently broad to allow for consideration of alternative sites for the project. The project alternatives that were identified in the FSA comprise a comprehensive set of alternatives sites, adequately evaluated for their potential as environmentally superior or preferable to the proposed CECP site. Applicant's Rebuttal Testimony regarding this issue is attached as **Exhibit 144.**

III. APPLICANT'S REBUTTAL WITNESSES

Applicant identifies the following witnesses who will appear in support of Applicant's opening and Rebuttal Testimony. Declarations and supporting qualifications for all witnesses are included as **Exhibits 119 through 141 and 153 through 164** as set forth in Applicant's Revised Exhibit List attached hereto. In addition to those witnesses identified in Applicant's Opening Testimony, the following witnesses are prepared to present testimony (see declarations set forth in the following Exhibits).

Exhibit	Witness
163	Frank Collins
158	Christopher Morrow
159	Robert Wojcik

IV. APPLICANT'S REVISED EXHIBIT LIST

Applicant presents its revised Exhibit List in **Attachment A**. These exhibits are also presented on the enclosed disk, which will be provided to the Committee, Hearing Officer, and all parties via U.S. Postal Service. Where oversize or voluminous exhibits exist, Applicant has identified as such and whether the exhibit is available on the CEC's website (at http://www.energy.ca.gov/sitingcases/carlsbad/documents/index.html) or on a CD-Rom, which is available upon request. Applicant's Revised Exhibit List uses asterisks to identify those exhibits available on disk or on-line.

In addition, pursuant to the Revised Notice of Prehearing Conference and Evidentiary Hearing Order, Applicant will provide to Hearing Officer Paul Kramer by no later than January 21, 2010 two paper copies of all proffered exhibits, presented in the requisite two formats: one set will be in numerical order as presented in Applicant's Revised Exhibit List; a second set will be presented by topic area, compiled in separate file folders with the appropriate exhibit number attached thereto.

V. REQUEST FOR COPIES OF OTHER PARTIES' EXHIBITS

At this time, Applicant is not requesting copies of any of the other parties' exhibits.

VI. CONCLUSION

Applicant is confident that the CECP AFC proceeding is ready for evidentiary hearings and a favorable decision by the California Energy Commission approving this important project.

Date: January 14, 2010

Stoel Rives LLP

for John A. McKinsey
Attorney for Applicant
CARLSBAD ENERGY CENTER LLC

ATTACHMENT A

Carlsbad Energy Center Project
(07-AFC-6)

Applicant's Exhibits in Support of Opening and Rebuttal Testimony

Exhibit #	Date	Description	Resource Area(s)
1	7/5/2007	Correspondence re: AFC Preparation for Encina	General
2	7/10/2007	Modeling Protocol	Air Quality
3	8/9/2007	Revised Modeling Protocol	Air Quality
4	9/11/2007	Carlsbad Energy Center LLC's Application for Certification for the Carlsbad Energy Center Project (Volumes I, II and related Appendices)	All
5	9/11/2007	AFC - Air Quality Modeling Files	Air Quality
6	9/17/2007	Application for Authority to Construct	Air Quality
7	9/19/2007	Application to City of Carlsbad for Amendment of the Precise Development/Specific Plans	Land Use
8	9/25/2007	Carlsbad Energy Center Project Courtesy Copies Data Adequacy Checklists	General
9	10/3/2007	Certification of Representation for Facility ORIS Code 0302	General
10	10/11/2007	Application for Designation of Confidential Records for Carlsbad, Cover Letter Only	General
11	10/23/2007	Application for Designation of Confidential Records (Cultural Resources)	Cultural
12	10/24/2007	Data Adequacy Supplement A	Air Quality, Biology, Cultural, Land Use, Socioeconomics, Traffic & Transportation, Transmission System Engineering, Transmission System Design, Public Health, Water Resources
13	10/24/2007	Attachment WR-1A, Waste Discharge Requirements	Waste Management
14	12/13/2007	Response to Staff's Issues Identification Report	General
15	12/18/2007	Applicant's Responses to SDAPCD's Requests for Supplemental Information (#1-25)	Air Quality (1-25)

Exhibit #	Date	Description	Resource Area(s)
16	12/19/2007	Applicant's PowerPoint Presentation from Site Visit & Informational Hearing	General
17	12/20/2007	Phase II Site Assessment (Attachment DR73-1)	Land Use
18	12/20/2007	Electronic Modeling Files	Air Quality
19	12/20/2007	Applicant's Responses to Staff's Data Requests, Set 1A (#1-73)	Air Quality, Cultural Resources, Power Plant Efficiency, Public Health, Socio, Soil/Water, Transmission, Visual, Waste Management
20	12/20/2007	Interconnection System Impact Study (Attachment DR53-1 to Data Responses)	Transmission System Engineering
21	12/20/2007	Report on Soil Remediation Encina Power Plant (Attachment DR73-2 to Data Responses)	Waste Management
22	12/26/2007	Supplemental Air Modeling Information Submitted to the San Diego County Air Pollution Control District (Application Nos. 985745-985748)	Air Quality
23	2/1/2008	Applicant's Response to Questions from Wesley Marx, Resident of Carlsbad	Air Quality
24	2/6/2008	Responses to City of Carlsbad's Data Requests, Set 1A (#49-61)	Air Quality (49-50); Land Use (51-54); Noise (55); Socioeconomics (56); Traffic & Transportation (57); Visual (58-60); Hazardous Materials (61)
25	3/18/2008	Responses to Staff's Data Requests, Set 2 (76-112)	Air Quality (76-91); Hazardous Materials (92-95); Socioeconomics (96-97); Traffic & Transportation (98-103); Visual (104-111); Waste Management (112)
26	4/17/2008	Offsite Alternatives Analysis	Land Use; Alternatives
27	4/18/2008	Emissions Baseline Calculations for the Existing Boiler Unites Submitted to SDAPCD	Air Quality
28	4/29/2008	Site Preparation & Construction Stormwater Management & Pollution Prevention Plan	Water Resources; Waste Management
29	5/7/2008	Applicant's Response to City of Carlsbad's April 25, 2008 Memorandum	General
30	5/29/2008	Letters of Support	General
31	6/3/2008	Project Consistency with City of Carlsbad Land Use Ordinances	Land Use

Exhibit #	Date	Description	Resource Area(s)
32	6/5/2008	Applicant's Response s to Staff's Data Requests, Set 2A (#113-124)	Air Quality (84-84, 87, 89-90; 113-118); Cultural ((119-122); Socioeconomics (123-124)
33	6/16/2008	Authority to Construct - Monitoring Plan for Compliance Testing and CEMS Accuracy Audit	Air Quality
34	7/1/2008	Non-Cancer Acute Health Hazard HRA Revised Modeling	Air Quality
35	7/25/2008	Project Enhancement and Refinement Document	All
36	7/30/2008	Correspondence to SDAPCD re NOx Emissions	Air Quality
37	8/12/2008	Letters of Support	General
38	8/12/2008	County of San Diego's Approval of Site Work Plan	General
39	8/15/2008	NPDES Permit Application	Water Resources
40	8/21/2008	Letters of Support	General
41	8/25/2008	Letter re lack of issues related to Coastal Commission non-participation	Land Use
42	8/27/2008	Revised Emissions Baseline Calculation for Existing Boiler Units 1, 2, and 3 at Encina Power Station	Air Quality
43	9/3/2008	Letters of Support from Ocean Hills' Deputy Mayor Rocky Chavez	General
44	9/4/2008	CECP Rain Permit Application & Statewide Compliance Certification	Air Quality
45	9/12/2008	Applicant's Responses to Staff's Data Requests, Set 3	Transmission System Engineering (125-128)
46	9/25/2008	Letters of Support	General
47	9/25/2008	Additional Acute Health Hazard Modeling Analysis	Air Quality
48	10/14/2008	Applicant's Responses to City's Data Requests, Set 3B	Air Quality (72-73); Biology (84-86; 94); Construction (63-65); Waste (115); Soil & Water Resources (117-118; 126; 129-132)
49	10/21/2008	Applicant's Responses to Staff's Data Requests, Set 3A #126-131	Cultural (126, 129-131)
50	10/23/2008	Applicant's objections to Center for Biological Diversity's Data Requests	General
51	10/30/2008	Request for Easements for Vista/Carlsbad Interceptor Sewer Replacement Project	Land Use/General

Exhibit #	Date	Description	Resource Area(s)
52	11/3/2008	Applicant's Status Report	General
53	11/4/2008	SDRWQCB correspondence re CECP NPDES Permit Application	General/ Water Resources
54	11/7/2008	Applicant's Fire Risk and Emergency Response Assessment Report	Worker Health and Safety & Fire Protection
55	11/17/2008	Applicant's Response to CURE's Document Request	General
56	11/20/2008	Applicant's Response to Center for Biological Diversity's Petition for Order Directing Responses to Data Requests	General
57	11/20/2008	Correspondence from SDG&E re 230kV Switchyard Expansion	Transmission System Engineering and Facility Design
58	11/21/2008	Preliminary Determination of Compliance from the SDAPCD	Air Quality
59	12/3/2008	Applicant's Status Report, December 2008	General
60	12/8/2008	Letter of Support from Andrew Howard	General
61	12/10/2008	Correspondence to SDAPCD re mailing of Notice of PDOC	Air Quality
62	12/29/2008	Applicant's Record of Conversation with California Department of Fish & Game	Biological Resources
63	1/5/2009	Applicant's Comments of SDAPCD's PDOC	General
64	1/16/2009	Editorial Publication from the San Diego Union Tribune and North Coast Times	General
65	1/26/2009	Applicant's Response to CBD's Data Requests (A1-G1)	Air Quality (A1-G1)
66	1/28/2009	Memorandum re Service of Responses of CBD's Data Responses	General
67	1/30/2009	Applicant's Opposition to City's Motion for Revised Preliminary Staff Assessment	General
68	1/30/2009	Applicant's Status Report, January 2009	General
69	1/30/2009	Applicant's Comments to PSA	General
70	2/13/2009	Revised Air Emissions Data (NOx Emission Reduction Credits; Revised NOx Baseline Calculations)	Air Quality
71	2/19/2009	Applicant's Responses to Staff's Data Requests, Set 4 (#142-158)	Air Quality
72	3/10/2009	Press Release from SD Regional Chamber of Commerce	General
73	3/10/2009	Correspondence from Bruce Wolfe	General

Exhibit #	Date	Description	Resource Area(s)
74	3/13/2009	February 26, 2009 and March 9, 2009 Correspondence to SDAPCD from Michael Carroll (NRG) re SDAPCD, Rule 20.3(e)(1) Statewide Compliance Certification	Air Quality
75	3/13/2009	Fire Code Compliance Table, CECP Fire/Emergency Site Access Routes Diagram, and Related Correspondence to City of Carlsbad	Worker Health and Safety and Fire Protection
76	3/13/2009	Summary of Cumulative Impact Air Quality Monitoring	Air Quality
77	3/13/2009	Applicant's Status Report - March 2009	General
78	4/8/2009	Letter of Support from San Diego Regional Chamber of Commerce	General
79	4/8/2009	Request Change to POS	General
80	4/9/2009	Applicant's Objections to City of Carlsbad's Data Requests, Set 4 (#142-151)	General
81	4/9/2009	Correspondence re Elimination of Dual Fuel Requirement	FERC; Cal-ISO; Board of Governors
82	4/9/2009	Notice of Submittal of Application for Designation of Confidential Records	General
83	4/20/2009	2007/2008 Fuel Use and NOx Emission Information	Air Quality
84	4/24/2009	Supplemental Fire Risk Assessment	Worker Health and Safety and Fire Protection
85	4/24/2009	Applicant's Status Report, April 2009	General
86	4/29/2009	Supplemental Health Risk Assessment	Air Quality
87	5/1/2009	Applicant's Response to City of Carlsbad's Petition Compel Response to Data Requests	General
88	5/4/2009	VOC Emission Reduction Credits (Certification Nos.)	Air Quality
89	5/19/2009	Notice of Application for Designation of Confidential Records	General
90	6/5/2009	Applicant's Status Report, June 2009	General
91	6/8/2009	Correspondence to EPA re Prevention of Significant Deterioration Non-Applicability Determination Request	Air Quality
92	6/19/2009	Objections to POV's Data Request, Set 1	General
93	6/23/2009	Correspondence to SDAPCD providing supplemental data re fuel use for Encina Units 1, 2, and 3 (2002-2006)	Air Quality
94	7/2/2009	Response to City of Carlsbad's Letter re SDG&E's RFO	General
95	7/7/2009	Response to Executive Director Jones' approval of Application for Confidential Treatment	General

Exhibit #	Date	Description	Resource Area(s)
96	7/14/2009	Opposition to Power of Vision's Petition to Compel Response to Data Requests	Air Quality
97	7/17/2009	Status Report, July 2009	General
98	8/4/2009	Letter of Support by SDREDC	General
99	8/4/2009	Correspondence from City of Del Mar	General
100	8/6/2009	SDAPCD's Final Determination of Compliance	Air Quality
101	8/11/2009	Correspondence to the Mayor or Solana Beach	General
102	8/19/2009	Response to South Carlsbad Redevelopment Agency's Petition to Intervene	General
103	8/25/2009	Encina Power Plant Annual Emissions Data (1997-2008)	Air Quality
104	9/1/2009	Status Report, September 2009	General
105	10/8/2009	Applicant's Response to Power of Vision's Data Request, Set 1	Air Quality (1)
106	10/12/2009	Applicant's Status Report, October 12, 2009	General
107	10/12/2009	Response to POV's further Petition to compel response to Data Requests	Air Quality
108	10/27/2009	Applicant's correspondence to City of Carlsbad officials re the City's proposed ordinance CS-067 (moratorium)	Land Use
109	11/23/2009	Letter of support	General
110	11/19/2009	Email from Steve Moore, SDAPCD, to Mike Monasmith and CECP Parties, transmitting the SDAPCD's "Responses to Comments, Carlsbad Energy Center Project" related to the PDOC	Air Quality
111	12/15/2009	Applicant's Opening Testimony	General/Various
112	12/15/2009	Applicant's Opening Testimony, Ex. A-1	Air Quality
113	12/15/2009	Applicant's Opening Testimony, Ex. A-2	Land Use
114	12/15/2009	Applicant's Opening Testimony, Ex. A-3	Visual Resources
115	12/15/2009	Applicant's Opening Testimony, Ex. A-4	Traffic and Transportation
116	12/15/2009	Applicant's Opening Testimony, Ex. A-5	Worker Safety & Fire Protection
117	12/15/2009	Applicant's Opening Testimony, Ex. A-6	Cultural Resources
118	12/15/2009	Applicant's Opening Testimony, Ex. A-7	Soil & Water Resources
119	12/15/2009	Declaration of Curtis R. Basnett	Pile Driving/ Vibration
120	12/15/2009	Declaration of Mark Bastasch	Noise
121	12/15/2009	Declaration of Jim Bushnell	Worker Safety
122	12/15/2009	Declaration of Marjorie Eisert	Biological Resources

Exhibit #	Date	Description	Resource Area(s)
123	12/15/2009	Declaration of Matthew Franck	Water Resources
124	12/15/2009	Declaration of Marsha Gale	Visual Resources
125	12/15/2009	Declaration of Clint Helton	Cultural Resources
126	12/15/2009	Declaration of Edward Holden	Project Description/ Facility Design/ Natural Gas Supply
127	12/15/2009	Declaration of Francisco D. Kayas	Electric Transmission
128	12/15/2009	Declaration of Thomas A. Lae	Geological Hazards
129	12/15/2009	Declaration of Steven P. Long	Soils
130	12/15/2009	Declaration of Sarah Madams	Hazardous Materials
131	12/15/2009	Declaration of Sarah Madams	Waste Management
132	12/15/2009	Declaration of Robert C. Mason	Various
133	12/15/2009	Declaration of Diep Nguyen	Worker Health & Safety and Fire Protection
134	12/15/2009	Declaration of George Piantka	Various
135	12/15/2009	Declaration of James Roldan	Traffic & Transportation
136	12/15/2009	Declaration of Ronald W. Rouse	Land Use
137	12/15/2009	Declaration of Gary Rubenstein	Air Quality/ Public Health
138	12/15/2009	Declaration of Jennifer Scholl	Alternatives
139	12/15/2009	Declaration of W. Geoffrey Spaulding, Ph.D.	Paleontological Resources
140	12/15/2009	Declaration of John Steinbeck	Biological Resources
141	12/15/2009	Declaration of Fatuma I. Yusuf, Ph.D.	Socioeconomics
142	12/17/2009	Correspondence to SDRWQCB re Report of Waste Discharge	Water Resources/ Biological Resourcs
143	1/14/2010	Applicant's Rebuttal Testimony (Air Quality and Public Health)	Air Quality/ Public Health
144	1/14/2010	Applicant's Rebuttal Testimony (Alternatives)	Alternatives
145	1/14/2010	Applicant's Rebuttal Testimony (Biological Resources)	Biological Resources
146	1/14/2010	Applicant's Rebuttal Testimony (Cumulative Impacts)	Cumulative Impacts
147	1/14/2010	Applicant's Rebuttal Testimony (Land Use)	Land Use
148	1/14/2010	Applicant's Rebuttal Testimony (Noise)	Noise
149	1/14/2010	Applicant's Rebuttal Testimony (Socioeconomics)	Socioeconomics
150	1/14/2010	Applicant's Rebuttal Testimony (Visual)	Visual Resources
151	1/14/2010	Applicant's Rebuttal Testimony (Water Resources)	Water Resources
152	1/14/2010	Applicant's Rebuttal Testimony (Worker Safety/ Fire Protection)	Worker Safety & Fire Protection
153	1/14/2010	Declaration of Gary Rubenstein in Support of Applicant's Rebuttal Testimony	Air Quality
154	1/14/2010	Declaration of Robert Mason in Support of Applicant's Rebuttal Testimony	Various
155	1/14/2010	Declaration of John Steinbeck in Support of Applicant's Rebuttal Testimony	Biological Resources and Water Resources
156	1/14/2010	Declaration of Ronald. W. Rouse in Support of Applicant's Rebuttal Testimony	Land Use

Exhibit #	Date	Description	Resource Area(s)
157	1/14/2010	Declaration of Mark Bastasch in Support of Applicant's Rebuttal Testimony	Noise & Vibration
158	1/14/2010	Declaration of Christopher Morrow in Support of Applicant's Rebuttal Testimony	Socioeconomics
159	1/14/2010	Declaration of Robert J. Wojcik in Support of Applicant's Rebuttal Testimony	Visual Resources
160	1/14/2010	Declaration of Marsha Gale in Support of Applicant's Rebuttal Testimony	Visual Resources
161	1/14/2010	Declaration of Matthew Franck in Support of Applicant's Rebuttal Testimony	Water Resources
162	1/14/2010	Declaration of Edward Holden in Support of Applicant's Rebuttal Testimony	Worker Health & Safety and Fire Protection
163	1/14/2010	Declaration of Frank Collins in Support of Applicant's Rebuttal Testimony	Worker Health & Safety and Fire Protection
164	1/14/2010	Declaration of George Piantka in Support of Applicant's Rebuttal Testimony	Various
165	1/14/2010	Visual Rendering - Landscape Buffer Cross Sections	Visual Resources
166	1/14/2010	Visual Rendering - Existing View Adams Street South of Hoover	Visual Resources
167	1/14/2010	Visual Rendering - Simulation of CECP with Landscaping at 5 years	Visual Resources
168	1/14/2010	Visual Rendering - Visual Simulation of CECP and I-5 Widening with landscaping at approximately 5 years	Visual Resources
169	1/14/2010	Visual Rendering - Simulation of CECP and I-5 Widening with landscaping at approximately 10 years	Visual Resources
170	1/14/2010	Visual Rendering - Conceptual Simulation with Landscape Buffer at approximately 5 years	Visual Resources
171	1/14/2010	Visual Rendering - Conceptual Simulation with Landscape Buffer at approximately 10 years	Visual Resources
172	10/8/2008	City of Carlsbad's Correspondence regarding Visual Impacts and Site Constraints	Visual Resources
173	Unknown	Narrated Video Clip Sponsored by the City of Carlsbad regarding February Evidentiary Hearings with Transcription (http://www.youtube.com/watch?v=3KAXQDCqlXg)	Visual Resources
174	Unknown	Narrated Video Clip Sponsored by the City of Carlsbad Citing to Visual Impacts and Coastal Commission Issues with Transcription (http://www.youtube.com/watch?v=aEHmSkk7Izc)	Visual Resources
175	1/14/2010	Visual Rendering - Caltrans Cross sections at beginning of Caltrans Wall	Visual Resources
176	1/14/2010	Visual Rendering - Caltrans cross sections at end of Caltrans wall. "Caltrans x-sect at end of wall"	Visual Resources

Exhibit #	Date	Description	Resource Area(s)
177	1/14/2010	Visual Rendering - Plan view of area available for landscape screening. "NRGE-CARLSBAD GRADING OPTION"	Visual Resources
178	1/14/2010	Visual Rendering - Caltrans right of way lines for each alternative alignment based on plan views. "NRGE-CARLSBAD RW OPTIONS".	Visual Resources
179	1/14/2010	Visual Rendering - Plan view of CECP and Caltrans 8+4 with barrier alignment and cross sections at three locations. "NRGE-CARLSBAD SITE EXHIBIT"	Visual Resources
180	1/14/2010	Email Correspondence between Caltrans Representatives and CECP Representatives with Oversize Attachments (Attachments not included; available upon request)	Visual Resources
181	1/14/2010	Email Correspondence between Caltrans Representatives and CECP Representatives without Attachments	Visual Resources
182	1/14/2010	General Email Correspondence between Caltrans Representatives and CECP Representatives	Visual Resources
183	1/8/2009	FAA Presentation re Flight Standards Assessment	Alternatives
184	11/20/2008	Correspondence from Joe Garuba to Mike Monasmith re Results of FAA Feasibility Report re Alternate Sites for CECP	Alternatives
185	Unknown	Map indicating radar flight tracks for McClellan-Palomar Airport	Alternatives
186	1/14/2010	Map: Existing and Future Conditions/ Uses	Socioeconomics
187	1/14/2010	Applicant's Prehearing Conference Statement	General
188	10/21/2008	Technical Memorandum - Preliminary Estimate of Vertical Plume Velocities for the Carlsbad Energy Center Project (CECP)	Alternatives
189	01/14/2010	Declaration of David Stein (with Attached Qualifications)	Alternatives

EXHIBIT 143

REBUTTAL TESTIMONY IN SUPPORT OF AIR QUALITY

Applicant's Rebuttal Testimony
for
Air Quality

Applicant's Witness: **Gary Rubenstein** *Date:* **January 14, 2010**

Responses to Air Quality Testimony of Intervenors

1. Issues Related to the Adequacy of the Air Quality Impact Analysis for CECP

A. CECP will not result in significant air quality impacts, or in significant cumulative air quality impacts.

In the testimony filed by Intervenor Terramar (Terramar to CEC, 1/7/10, Ex. 307), the Intervenor claims that cumulative impacts evaluations are something they have "implored the SDAPCD to perform", and that "neither CEC staff nor the SDAPCD has evaluated all of these projects together to identify the cumulative effects." In addition, in its testimony (Terramar to CEC, 1/7/10, Ex. 309), the Intervenor expresses concern regarding living in the San Diego air basin which is designated as nonattainment, and regarding the influences of several sources of air pollution, including I-5, the Encina Power Station, and nearby railroad tracks. The SDAPCD has already responded to a similar comment made by this Intervenor on the PDOC. In response to this comment (SDAPCD responses to comments, 11/19/09, page 39), the SDAPCD explained that for the CECP it evaluated the potential public health impacts of criteria pollutants (NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$) with respect to applicable ambient air quality standards. In addition, the SDAPCD evaluated the toxic air contaminant emissions with respect to the standards of SDAPCD Rule 1200. The impacts were found to be less than the standards used to determine whether the impacts pose a significant risk to public health. In the SDAPCD's air quality impact analysis (AQIA) for criteria pollutants performed for the CECP, the emissions from vehicles or widely distributed existing stationary sources are accounted for because they are included as part of the background ambient concentrations utilized in the AQIA. Emissions from existing railroad activity would also be reflected in these background ambient concentrations.

In addition to the analysis performed by the SDAPCD, the CEC Staff also analyzed localized cumulative air quality impacts for the CECP. In the FSA (FSA, Revised December 2009, pages 4.1-48 to -51), the CEC Staff analyzed the cumulative air quality impacts of the new equipment associated with the CECP, the existing Encina Power Station Units 4 and 5 and the peaking gas turbine, and reasonably foreseeable projects in the project area. As with the SDAPCD AQIA, in its localized cumulative air quality impact analysis the CEC Staff assumes that other existing emission sources in the project area are accounted for as part of the background ambient concentrations. Emissions from existing railroad activity and vehicle travel on I-5 are reflected in these background ambient concentrations.

The worst-case modeled impacts for the new equipment along with the impacts for the units that will continue to operate at the Encina Power Station were added to existing (background) concentrations from nearby monitoring stations to determine the total ambient concentrations.[1] These total concentrations were then compared with the ambient air quality standards. As shown in the FSA (FSA, Revised December 2009, Table 27), the combined impacts of the new equipment and existing units will result in concentrations well below the most stringent air quality standards. Even when combined with existing background levels, these impacts are below the air quality standards for NO_2, CO, and SO_2. For PM_{10} and $PM_{2.5}$, the background levels already exceed air quality standards. However, the combined impacts for the new equipment/existing units will add only a small amount (less than four percent[2]) to existing $PM_{10}/PM_{2.5}$ concentrations at the point of maximum impact. Because the combined $PM_{10}/PM_{2.5}$ impacts for the new equipment/existing units are small, and are below the PM_{10} Significant Impact Levels (SILs) of 1 $\mu g/m^3$ (annual) and 5 $\mu g/m^3$ (24-hour) established by the EPA, the Applicant does not believe these impacts to be significant. However, to address concerns raised by the CEC Staff and members of the community, the Applicant will provide $PM_{10}/PM_{2.5}$ mitigation for the CECP. With mitigation the CEC Staff has concluded that there will be no significant cumulative air quality impacts associated with the CECP (FSA, Revised December 2009, page 4.1-51).

B. The air quality analysis appropriately addresses the potential impacts of the Interstate-5 (I-5) widening project.

In the testimony by the Intervenor City of Carlsbad (City of Carlsbad to CEC, 01/06/2010, testimony, Hogan, response to question number 7), the Intervenor claims that the FSA fails to consider probable future projects with related impacts on several environmental resources. One example of this given by the Intervenor is that the Public Health section does not consider the emissions from the I-5 Widening Project in its discussion of cumulative impacts (FSA, pages 4.7-27,28). The CEC Staff responded to a similar comment made by this Intervenor on the PSA. (City of Carlsbad to CEC, 01/30/09, page 5), In the CEC Staff's response to comments on the PSA (FSA, Revised December 2009, page 4.1-127), the CEC Staff addresses this comment by explaining that the I-5 widening project has been addressed in the air quality section of the FSA. In the FSA, the CEC Staff addresses the construction and operating impacts associated with the I-5 widening project. With regards to construction impacts, in the FSA (FSA, Revised December 2009, page 4.1-50), the CEC Staff concludes that it is unlikely that the construction of the I-5 widening will occur during the same time as the construction of the CECP. Consequently, there are no significant cumulative air quality impacts related to the I-5 widening project expected regarding construction emissions. Regarding cumulative operational impacts (FSA, Revised December 2009, page 4.1-50), the CEC Staff concludes that the CECP operation and the I-5 widening construction are expected

[1] This is a conservative assumption, since operation of the existing Encina units contributes to the existing background concentration; consequently, these impacts are accounted for twice in the CEC's analysis.

[2] Based on FSA Table 27 regarding $PM_{10}/PM_{2.5}$ combined impact of 1.4 $\mu g/m^3$ 24-hr average impact when existing Units 4 and 5 and peaking gas turbine are operating on natural gas. The $PM_{2.5}$ 24-hr impact of 1.4 $\mu g/m^3$ divided by the background level of 37.7 $\mu g/m^3$ is approximately 3.7%.

to have maximum air quality impacts in different locations due to the differences in the types of emission sources and their relative dispersion characteristics. In addition, in the FSA the CEC Staff states that the emissions from mobile source operation on I-5 are forecast to have long-term emission reductions through improvements in on-road vehicle engine technology and vehicle turnover. Therefore, there are no significant cumulative air quality impacts expected regarding operational emissions. With regards to public health toxic air contaminant (TAC) impacts, these same conclusions would hold true. The TAC impacts associated with the I-5 Widening Project will have maximum air quality impacts in different locations than the CECP due to the differences in the types of emission sources and their relative dispersion characteristics. In addition, the TAC emissions from mobile source operation on I-5 are expected to have long-term reductions through improvements in on-road vehicle engine technology and vehicle turnover.

C. The cumulative air quality and public health impact analyses properly address other projects with the potential to contribute to a significant cumulative impact.

In the testimony by the Intervenor City of Carlsbad (City of Carlsbad to CEC, 01/06/2010, testimony, Hogan, response to question number 7), the Intervenor claims that the Public Health Section of the FSA fails to list the nearby projects that may contribute to a public health impact. However, as discussed in the Public Health Section of the FSA (FSA, November 2009, page 4.7-22), the AFC includes discussion of the search for recently submitted permit applications and/or permits issued by the SDAPCD for the project area. In addition, in the Air Quality Section of the FSA (FSA, Revised December 2009, page 4.1-49), the CEC Staff also refers to the search for new permit applications/permits in the project area contained as part of the AFC (AFC, 2007, Appendix 5.1F) and summarizes the results of this search. The Air Quality Section of the FSA also discusses the proposed I-5 Widening Project and continued operation of Encina Power Station Units 4, 5, and the Encina peaking gas turbine (FSA, Revised December 2009, page 4.1-50). Finally, the FSA (FSA, Revised December 2009, page 4.1-48) explains how existing emission sources in the project area are accounted for as part of the background ambient levels used in the cumulative impact analysis. Consequently, the FSA properly identifies the existing and proposed new projects analyzed in the Air Quality/Public Health Cumulative Impact Analyses.

D. The cumulative air quality impact analysis was properly performed.

In the testimony by the Intervenor City of Carlsbad (City of Carlsbad to CEC, 01/06/2010, testimony, Hogan, response to question number 9), the Intervenor claims that the FSA used an improper "ratio" analysis (citing *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 718) when considering the CECP's cumulative impacts because the FSA concludes that the project would not impact the Carbon Monoxide Maintenance Plan on the basis that the project's generated traffic would be insignificant in comparison with the existing San Diego County traffic In the FSA, the CEC Staff explains the overall approach used for the air quality cumulative impact analysis (FSA, Revised December 2009, pages 4.1-44 to -51). This approach includes examining regional and localized cumulative air quality impacts. As part of the analysis

of regional impacts, the CEC Staff examines the various plans developed to implement the federal Clean Air Act and state environmental laws in the San Diego Air Basin (FSA, Revised December 2009, pages 4.1-45 to -48). One of these plans discussed in the FSA is the 2004 revision to the California State Implementation Plan (SIP) for Carbon Monoxide (FSA, Revised December 2009, pages 4.1-46 to -47). The FSA did not use a ratio method with regards to the SIP for Carbon Monoxide. Rather, the CEC Staff comes to the reasonable conclusion that, due to the small number of vehicle trips associated with the construction/operation of the CECP compared to existing regional San Diego County traffic levels, combined with the modeling analysis which shows that the CECP maximum ambient CO impacts are below air quality standards, the CECP will not adversely impact the Carbon Monoxide SIP.

In addition, the Intervenor claims that in the FSA the CEC Staff did not apply the proper standard for analyzing cumulative impacts. An example of this cited by the Intervenor is in the Air Quality Section of the FSA where the CEC Staff allegedly did not consider the CECP's incremental contribution to cumulative impacts unless it provided a "substantial contribution." (FSA, p. 4.1-49.) The Intervenor argues that the question in a cumulative impacts discussion is not whether an individual project's contribution is "substantial" but whether its incremental contribution, of whatever size or amount, is significant when considered in combination with the effects of other past, present and probable future projects. In fact, both the AFC and the FSA evaluate the potential for significant cumulative air quality impacts in a number of ways: through an assessment of the project's impacts in combination with measured background air quality levels; through an assessment of project impacts in combination with continued operation of other EPS sources; and through an assessment of other, reasonably foreseeable projects that have the potential to result in cumulative air quality impacts in conjunction with the proposed project. In each of these assessments, the Applicant and CEC Staff have both concluded that either there was no potential for significant cumulative air quality impacts, or that there was such a potential but that these impacts were mitigated to a less than significant level through the imposition of conditions by either the SDAPCD or the CEC.

E. The use of an averaging time of three hours is appropriate for emission limits during transient operation of the proposed combustion gas turbines.

In the testimony by the Intervenor Power of Vision (POV to CEC, 1/05/2010, testimony, Exhibit 703), the Intervenor asks "What is the justification for changing the transient average from one hour to three hours?" As discussed in the FSA (FSA, Revised December 2009, page 4.1-26), the 3-hour average during transient operation was allowed by the CEC Staff and the SDAPCD to deal with minor short term emission spikes that may occur during transient gas turbine operation.

F. The combustion gas turbine manufacturer, Siemens, provided information that assures the proposed design can meet the applicable emission limits.

In the testimony by the Intervenor Power of Vision (POV to CEC, 1/05/2010, testimony, Exhibit 703), the Intervenor asks: "Did Siemens' letter raise questions during Staff's

analysis that the proposed configuration, which has not been in operation elsewhere in the world, may have problems meeting normal emission standards?"

The Siemens information cited by the Intervenor is a figure provided by Siemens that shows NOx ppm levels during transient gas turbine operation. This Siemens figure was included in the Applicant's comments on the SDAPCD PDOC (CECP to SDAPCD, 01/05/2009, Attachment 1). As discussed in the FSA (FSA, Revised December 2009, page 4.1-26), as part of the Applicant's comments on the SDAPCD PDOC, the Applicant requested an increase in 1-hour NOx emissions during transient gas turbine operation. As part of this request (CECP to SDAPCD, 01/05/2009, Attachment 1), the Applicant provided a figure from Siemens that showed gas turbine NOx ppm levels during transient operation.

However, as noted in the FSA (FSA, Revised December 2009, page 4.1-26) the SDAPCD researched this request and concluded that there was insufficient data available to accept this request by the Applicant. A more detailed explanation of the SDAPCD conclusion regarding this request is included in the SDAPCD's response to comments on the PDOC. As explained in the SDAPCD's response to this request from the Applicant (SDAPCD to public, 11/19/2008, response to Applicant Comment 2), the SDAPCD did not find the data provided by Siemens to be compelling because the data only showed the gas turbine combustor NOx ppm levels, and did not account for the control of the SCR system during these transient conditions. Because the Siemens data referenced by the Intervenor in this comment are specific to transient operations, this data does not raise questions about the proposed gas turbines' ability to comply with emission limits during normal operation. During transient conditions, the Siemens data indicates that the gas turbine NOx levels may spike for short periods of time, but the SDAPCD concluded (SDAPCD to public, 11/19/2008, response to Applicant Comment 2) that the SCR system will be able to help control these short-term emission spikes.

In the testimony by the Intervenor Power of Vision (POV to CEC, 1/05/2010, testimony, Exhibit 703), the Intervenor continues this line of inquiry as follows: "Since Siemens' letter, showing NOx emissions during steady state operation of the turbines of around 9 ppmvd prior to treatment by a Selective Catalytic Reduction (SCR) system, did Staff investigate whether the applicant's choice of an SCR system will be able to lower stack emissions to the required 2 ppmvd?"

The Siemens information cited by the Intervenor is a figure provided by Siemens that shows NOx ppm levels during transient gas turbine operation. This Siemens figure was included in the Applicant's comments on the SDAPCD PDOC (CECP to SDAPCD, 01/05/2009, Attachment 1). As discussed in the Siemens information cited by the Intervenor, during normal operation the gas turbine NOx emissions are expected to be 9 ppmvd @ 15% O_2 or lower. At the highest NOx level of 9 ppmvd @ 15% O_2 listed in the Siemens' information, the SCR would need to control NOx by approximately 78% to achieve the BACT limit of 2 ppmvd @ 15% O_2. A properly designed SCR system typically achieves a NOx control level in excess of 80%. In addition, as shown in the 12/17/07 letter from Siemens, included in as part of an information package submitted to

the SDAPCD in 2007 (CECP to SDAPCD, 12/18/2007, Attachment 3), the CECP SCR system is designed to meet a NOx limit of 2.0 ppmvd @ 15% O_2. Consequently, the CEC Staff properly concluded that the use of an SCR system for the CECP meets District BACT requirements, and that the proposed emission levels are reduced to the lowest technically feasible levels (FSA, Revised December 2009, page 4.1-43).

G. Startup period was properly defined and limited in FSA Condition AQ-11.

In the testimony by the Intervenor Power of Vision (POV to CEC, 1/05/2010, testimony, Exhibit 706), the Intervenor asks "Question: Would Staff consider amending AQ-11 to include limiting a startup period to the time it takes to reach 114 MW, not to exceed 60 consecutive minutes?"

As presented in FSA Condition AQ-11, a startup period is initiated by the first flow of natural gas fuel and ends when permitted emission limits are satisfied, which may occur at varying power levels, but not necessarily 114 MW. The time limit of 60 minutes sets an upper bound on duration of the startup period. In contrast, in FSA Condition AQ-10, the definition of a shutdown period specifies a power level at which the shutdown begins, while the end of the shutdown period is properly set by the same condition at "...five minutes after fuel flow to the combustion turbine ceases...".

H. The reporting of daily and annual low-load durations for FSA Condition AQ-20 and annual emissions in FSA Condition AQ-44 is adequate to avoid any potential exceedence.

In the testimony by the Intervenor Power of Vision (POV to CEC, 1/05/2010, testimony, Exhibit 707), the Intervenor asks "In view of the 'enforceable operation limitations' mentioned in the Executive Summary, and in view of the fact that shutting down the new units when such limits are reached could have serious consequences to the electrical network, would staff consider amending AQ-20 and AQ-44 to include a provision whereby the applicant is required to inform the San Diego Air Pollution Control District and the California ISO when 90 % of the limits are reached?"

As implied by the verification description for FSA Condition AQ-44, the Quarterly Operation Reports provide adequate warning to the CEC and the District of the frequency of occurrence and incremental increase over time of daily and annual accumulated low-load operation and the incremental increase over time of annual cumulative emissions to assure no surprises and ultimate compliance with the limits in both FSA Conditions AQ-20 and AQ-44. Separate reporting to the District and CaISO of the potential accumulation of 90% of the limits in these two conditions would not add sufficiently improved operation management information to justify the added reporting steps.

2. Issues Related to the Adequacy of Emission Reduction Credits or Mitigation

A. The air quality mitigation requirements imposed on the project provide both local and regional benefits.

In the testimony by Intervenor Terramar (Terramar to CEC, Jan. 7, 2010, Ex. 309), the Intervenor claims that regional mitigation and pollution credits are not acceptable solutions for residents closely surrounded by all of these major emission projects. As discussed in the FSA (FSA, Revised December 2009, pages 4.1-28, 4.1-41 to -44), the mitigation package for the CECP is comprised of a combination of mitigation measures including emission reductions associated with the shutdown of Encina Generating Station Units 1-3, purchase of emission reduction credits, and funding of emission reduction programs. The shutdown of Encina Generating Station Units 1-3 provides both localized and regional air quality benefits. In addition, the purchased emission reduction credits and funding of emission reduction programs will all be associated with emission reductions that occur/occurred within San Diego County, providing benefits throughout the County, including in the vicinity of the proposed projects. Finally, with regards to local impacts as discussed in the FSA (FSA, revised December 2009, pages 4.1-48 to -51), the air quality modeling prepared for the CECP shows that the combined impacts of the new equipment and existing units will result in concentrations well below the most stringent air quality standards. Even when combined with existing background levels, these impacts are below the air quality standards for NO_2, CO, and SO_2. For PM_{10} and $PM_{2.5}$, the background levels already exceed air quality standards. However, the combined impacts for the new equipment/existing units will add only a small amount (less than four percent[3]) to existing $PM_{10}/PM_{2.5}$ concentrations at the point of maximum impact. Because the combined $PM_{10}/PM_{2.5}$ impacts for the new equipment/existing units are small, and are below the PM_{10} Significant Impact Levels (SILs) of 1 µg/m3 (annual) and 5 µg/m3 (24-hr) established by the EPA, both the Applicant and CEC Staff conclude that these impacts are not significant.

B. Baseline emissions from past operation of Encina Units 1-3 were properly determined; there is no regulatory basis for requiring a speculative, future baseline.

In the opening testimony by the Intervenor Power of Vision (POV to CEC, 1/05/2010, testimony, Exhibit 704), the Intervenor questions the time period used by the CEC Staff and SDAPCD to determine the baseline emissions for Encina Power Station Units 1-3. In response to a similar comment from the Intervenor POV on the PSA (FSA, Revised December 2009, page 4.1-132), the CEC Staff responded that the dates for the calculation of emission netting under SDAPCD NSR regulations for Encina Power Station Units 1-3 are tied to the original permit application submittal date which occurred in 2007. Consequently, the CEC staff concluded that 2002 to 2006 was the appropriate time period to determine the baseline emissions for Units 1-3. In addition, the SDAPCD performed a

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[3] Based on FSA Table 27 regarding $PM_{10}/PM_{2.5}$ combined impact of 1.4 µg/m^3 24-hr average impact when existing Units 4 and 5 and peaking gas turbine are operating on natural gas. $PM_{2.5}$ 24-hr impact of 1.4 µg/m^3 divided by background level of 37.7 µg/m3 is approximately 3.7%.

detailed analysis of the baseline emissions for Units 1-3 in the FDOC and the CEC Staff found this analysis to be comprehensive and complete.

With respect to the portion of the Project's air quality mitigation that is related to the shutdown of Units 1 to 3, the selection of the baseline for assessing the reduced emissions associated with that shutdown was properly made. In the SDAPCD's response to comments on the PDOC (SDAPCD response to comments, 11/19/09, page 28), the SDAPCD explained that the SDAPCD established the representative period for determining the actual emissions for Units 1-3 as the five-year period prior to the CECP complete application filing date in accordance with SDAPCD Rule 20.1(d)(2)(i). Since the CECP application was filed in 2007, the representative period to determine actual emissions for Units 1-3 is from 2002 to 2006. The main substantive change to the project in the July 2008 Project Enhancement Package was an increase in the stack height from 100 to 139 feet, which had no effect on the emissions for the new equipment and reduced ambient air quality impacts. Consequently, the SDAPCD did not consider this package to be a sufficient modification of the project and no new application was required.

As part of its response to the City's comment, the SDAPCD also pointed the City to the SDAPCD's response to a similar comment made by Intervenor Simpson. In a SDAPCD response to a comment made by Intervenor Simpson on the PDOC (SDAPCD response to comments, 11/19/09, page 44), the SDAPCD explained that the goal of selecting a time period to determine baseline emissions for existing equipment is not to find the lowest or highest value of actual emissions, but to find a representative value.

As part of its response to the City's comment, the SDAPCD also pointed the City to the SDAPCD's response to a similar comment made by Intervenor Simpson. In a SDAPCD response to a comment made by Intervenor Simpson on the PDOC (SDAPCD response to comments, 11/19/09, page 44), the SDAPCD explained that the goal of selecting a time period to determine baseline emissions for existing equipment is not to find the lowest or highest value of actual emissions, but to find a representative value.

Units 1-3 at the Encina Power Station have been used in recent years more as peaking units than baseload units. As such, the units' operation may vary greatly from year to year depending on the weather, which largely determines electrical demand, and availability of electrical generating assets not only in California, but also throughout the Western United States. Therefore, the SDAPCD concluded that because of the variable nature of the operation of Units 1-3, no consecutive two-year period was representative of actual emissions for Units 1-3, and it based the calculation of actual emissions on a five-year average (2002 to 2006). The SDAPCD also notes that if 2004 to 2005 had been chosen as the basis for actual emissions for Units 1-3, the baseline emissions would have been significantly greater.

In the opening testimony by the Intervenor Power of Vision (POV to CEC, 1/05/2010, testimony, Exhibit 702), the Intervenor asks "Why does the FSA not include data from the more recent CEC 2009 IEPR (Exhibit 739, Reference 1), which shows a lower forecast for electricity consumption than the 2007 report, and the CEC California Energy

Demand 2010-2020 Staff Final Report, September 2009 (Exhibit 739, Reference 2) which shows lower peak power demand for the San Diego Region than prior reports? Also, why does the FSA fail to mention the California ISO 2011-2013 Local Capacity Technical Analysis, December 29, 2008 (Exhibit 739, Reference 3) which predicts that for years 2011-2013 there will be no Category B capacity deficiency for the San Diego Region? "

In its comments on the SDAPCD PDOC (POV to SDAPCD, 12/05/2008, page 1), Intervenor POV raised a similar issue, requesting that the SDAPCD require the baseline emissions for Encina Power Station Units 1-3 to be based on the projected future operation of these units in the year 2012 (the year they will be retired due to the operation of the new units) using future electrical demand projections. The SDAPCD rejected this request in its response to comments on the PDOC (SDAPCD response to comments, 11/19/09, page 35). In this response the SDAPCD explained that the District New Source Review (NSR) regulations require the determination of baseline emissions for existing equipment to be based on historical emissions, not projected future emissions. This approach is consistent with their use to determine actual emissions reductions rather than projected emission reductions. The time period allowed under the NSR regulations to determine baseline emissions is the five-year period prior to the receipt of a complete application. For the CECP, the five-year period to determine the baseline emissions for Units 1-consists of the calendar years 2002 to 2006 since the application for this project was received and determined complete in 2007. The SDAPCD also notes that if peak electrical demand were used to establish the future operation of Units 1-3, it might forecast an increase in use of the existing boilers if the new power plant is not built.

Neither the baseline for determining the offsets available from shutting down EPS Units 1-3 nor the future operating scenarios and associated emission calculations for the Project need to quantitatively account for projections of future electric energy demand in the San Diego region or elsewhere in the state. As long as the air quality impacts of the proposed project are less than significant and all LORS will be satisfied, the applicant is permitted to construct the Project and take the risk that it will not operate as much as anticipated.

C. The quantity of offsets required by the CEC as mitigation has been properly determined, and the timing and methods for the provision of this mitigation are properly specified.

In the opening testimony by the Intervenor Power of Vision (POV to CEC, 1/05/2010, testimony, Exhibit 705), the Intervenor asks "Can the applicant indicate which method of mitigation will be used?" from the five methods described in FSA Condition AQ-SC10.

The applicant will comply with FSA Condition AQ-SC10 by determining the most cost-effective combination of the five methods described in the condition, and will "...submit to the CPM confirmation that the appropriate quantity of Carl Moyer Project or other emission reduction program funding and/or ERCs have been provided prior to initiation of on-site construction activities for emission reduction program funding and at least 30 days prior to turbine first fire for ERCs", as required for verification of compliance with

the condition. Further, the applicant will "...provide emission reduction project selection information to the CPM for review and approval at least 15 days prior to committing funds to each selected emission reduction project" and will "...provide confirmation that the level of emission reduction program funding will meet the emission reduction requirements of this condition." (Revised FSA, p. 4.1-66)

In its comments on the CEC PSA (POV to CEC, 01/29/09, page 7), Intervenor POV requested that the methodology for meeting the CEC Staff's recommended $PM_{10}/PM_{2.5}$ and VOC emission offsets be described in more detail, and that the mitigation be provided prior to issuance of the FSA. In the CEC Staff's response to comments on the PSA (FSA, Revised December 2009, page 4.1-133), the CEC Staff responds to this comment by explaining that the Staff has accepted the Applicant's proposal to mitigate the impacts of CECP's $PM_{10}/PM_{2.5}$ and VOC emissions by using a combination of ERCs currently held by the Applicant and new emission reductions funded as specified in FSA Condition of Certification AQ-SC10. The CEC Staff points out that the details of the Staff's review and findings on the CECP mitigation package are included in the FSA (FSA, Revised December 2009, pages 4.1-41 to 44).

In the testimony by the Intervenor Power of Vision (POV to CEC, 1/05/2010, testimony, Exhibit 741), the Intervenor states: "The old plant is a peaker plant. It operates about 7 to 8 per cent of the time. The new plant will operate up to 60 per cent of the time. It is true that the new plant will be cleaner and much more efficient per unit of energy produced, but what the Staff has left out is that it will run four times more often and put our four times more pollution. It is not acceptable to only require a 1.1 ration to buy emissions credits. It should be at least 3.1, as was requested from the State Lands Commission for the Poseidon project. We do not want to return to the old days when our air was so dirty from pollution that the power company was forced to repaint cars and homes in the local neighborhood. The citizens need your protection now."

The FSA discusses the historical emissions for the existing units at the Encina Power Station and the projected maximum future emissions for the proposed new CECP units (FSA, Revised December 2009, pages 4.1-27 and -28). In addition, as discussed in the FSA (FSA, Revised December 2009, pages 4.1-28, 4.1-41 to -44), the mitigation package for the CECP is comprised of a combination of mitigation measures including emission reductions associated with the shutdown of Encina Power Station Units 1-3, purchase of emission reduction credits, and funding of emission reduction programs. The shutdown of Encina Power Station Units 1-3 provides both localized and regional air quality benefits. In addition, the purchased emission reduction credits and funding of emission reduction programs will all be associated with emission reductions that occur/occurred within San Diego County, providing benefits throughout the County, including in the vicinity of the proposed projects. Finally, with regards to local impacts as discussed in the FSA (FSA, revised December 2009, pages 4.1-48 to -51), the air quality modeling prepared for the CECP shows that the combined impacts of the new equipment and existing units will result in concentrations well below the most stringent air quality standards. Even when combined with existing background levels, these impacts are below the air quality standards for NO_2, CO, and SO_2. For PM_{10} and $PM_{2.5}$, the

background levels already exceed air quality standards. However, the combined impacts for the new equipment/existing units will add only a small amount (less than four percent[4]) to existing $PM_{10}/PM_{2.5}$ concentrations at the point of maximum impact. Because the combined $PM_{10}/PM_{2.5}$ impacts for the new equipment/existing units are small, and are below the PM_{10} Significant Impact Levels (SILs) of 1 μg/m3 (annual) and 5 μg/m3 (24-hr) established by the EPA, both the Applicant and CEC Staff conclude that these impacts are not significant.

3. Issues Related to Greenhouse Gas Emissions

A. The FSA properly concludes that Project greenhouse gas emissions are neither directly significant nor cumulatively significant.

In opening testimony, Intervenor Pacific Environment stated that "[t]he project will result in a substantial net increase in greenhouse gas emissions" (Rory Cox Testimony, p. 5). In its opening testimony, Intervenor Terramar states that it is troubled by the CEC claim, but no guarantee, of a cumulative net reduction of GHG emissions. (Terramar testimony, pp. 10-12) As discussed in the FSA, the overall effect of operating the Project would be to reduce, not increase, net GHG emissions for the California and Western Interconnect electric systems, and hence the Project GHG emissions cannot be directly or cumulatively significant. More specifically, and as discussed by CEC Staff on FSA (revised) at pages 4.1-101 and -102, CECP is expected to result in a net reduction, but certainly no net increase, in the generation of GHG. The fundamental principle that assures this result is that the dispatch order of generating facilities calls for the most efficiently generated electric energy first, and the least efficient last. The CEC states this conclusion clearly multiple times as follows:

> "...project that will operate on an as needed basis to provide local grid reliability support. This will allow the closure of existing older units (Encina units 1, 2, and 3) that are less efficient, and displace in the dispatch order other peaking power plants that burn natural gas less efficiently. Thus, CECP decreases the overall amount of GHG emissions per megawatt-hour for both California and the Western Interconnect." (CEC. *Revised Sections for the Carlsbad (07-AFC-6) FSA Dated November 2009,* Appendix AIR-1, page 4.1-101, December 15, 2009.)
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> "While CECP would emit GHG emissions, the relative efficiency of CECP and the system build-out of renewable resources in California would result in a net cumulative reduction of energy and GHG emission from new and existing fossil resources." (Ibid.)
>
> "These system impacts would result in a net reduction in GHG emissions across the electricity system providing energy and capacity to California. Thus, Staff

[4] Based on FSA Table 27 regarding $PM_{10}/PM_{2.5}$ combined impact of 1.4 $\mu g/m^3$ 24-hr average impact when existing Units 4 and 5 and peaking gas turbine are operating on natural gas. $PM_{2.5}$ 24-hr impact of 1.4 $\mu g/m^3$ divided by background level of 37.7 μg/m3 is approximately 3.7%.

believes that the project would result in a cumulative overall reduction in GHG emissions from power plants, does not worsen current conditions, and would not result in impacts that are cumulatively significant." (Ibid, page 4.1-102.)

Applicant agrees completely with these conclusions set forth in the FSA.

The methodology of the cumulative impact analysis for GHG emissions was more specifically criticized by the City as failing to identify probable future projects that would also emit GHG. (City of Carlsbad to CEC, 01/30/09, testimony, Hogan, p.5, Answer No. 7) Because the CEC's cumulative impact analysis of the Project's GHG emissions has a global context due to the nature of climate change impact, there is no practical way specific future projects around the globe could be identified. The FSA is consistent with the CEC's decision to conduct such analysis on the California and Western Interconnect electric energy systems as a whole,[5] and does list a set of pending future projects in the more reasonable geographical context of the San Diego Air Basin (FSA, Revised December 2009, Greenhouse Gas Table 5, page 4.1-112).

The City continues to claim that the FSA cumulative analysis of GHG emissions "...does not consider the CECP's incremental contribution of GHG emissions in connection with the emissions of other past, present and probable future projects" (Note: This same complaint was made by CBD [CBD opening testimony, p. 3]) suggesting that the analysis "...improperly evaluated the project's impacts against a hypothetical baseline involving unidentified renewable energy resources and old and new power plants which may or may not commence or terminate operations, rather than against the actual physical conditions in the affected area." (City of Carlsbad to CEC, 01/30/09, testimony, Hogan, p.7-8, Answer No. 9) Not only did the FSA discuss the Project's GHG emissions in detail (FSA, Revised December 2009, Greenhouse Gas Tables 2 and 3 on pages 4.1-106 and 107, respectively), but it also examined the GHG emissions from the existing Encina Power Station units (FSA, Revised December 2009, Greenhouse Gas Table 4 on page 4.1-108). After thoroughly discussing the kinds of power plants that, in a reasonably foreseeable manner, would be dispatched before and after the CECP would be dispatched, the overall effect of operating the Project would be to reduce, not increase, net GHG emissions for the California and Western Interconnect electric systems. The incremental change in system GHG emissions would be negative, not positive. (CEC, *Revised Sections for the Carlsbad (07-AFC-6) FSA Dated November 2009,* Appendix AIR-1, page 4.1-101, December 15, 2009.)

Finally, the City claims that "...the FSA fails to consider the actual impact on the physical environment". (City of Carlsbad to CEC, 01/30/09, testimony, Hogan, p.8, Answer No. 9) Because the actual impact on the physical environment is potential global

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[5] (CEC Siting Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications [March 2009] [the "Committee CEQA Guidance"])The Committee took official notice of this report pursuant to section 1213 of Title 20 of the California Code of Regulations on June 15, 2009. (See 7/7/2009 RT 18:5-13.) This report is available at http://www.energy.ca.gov/2009publications/CEC-700-2009-004/CEC-700-2009-004.PDF (last visited July 21, 2009).

climate change from global GHG emissions, there is no direct quantifiable local effect of the CECP's GHG emissions alone. On a global basis, operation of the project would result in a net reduction of GHG emissions as discussed in earlier in this response; hence, there can be no actual adverse impact on the environment.

Intervenor CBD complained that the CEC failed "...to discuss or analyze the amount of greenhouse gas emissions that would result in a significance finding." (CBD Opening Testimony, p. 3) Because the Project is expected to result in a net decrease in GHG emissions, and an adverse impact could only result from a net increase in GHG emissions, the resulting less-than-significant impact does not require the CEC, or any other Lead Agency, to discuss a quantitative threshold of net increase in GHG emissions that would be found to be a significant adverse impact.

Finally, Intervenor CBD has also asserted that the CEC improperly concluded in the PSA that Project construction GHG emissions are insignificant. GHG emissions from construction of the Project would amount to 4,686 metric tons CO_2-equivalent ($MTCO_2e$) as shown in Greenhouse Gas Table 2 of the December 15, 2009 Revised FSA. These one-time construction GHG emissions would be approximately 0.28% of Project operation GHG emissions[6] during the minimum of two years required to circulate the construction GHG emissions around the globe and cause its contribution to global climate change. Construction GHG emissions are mitigated, as discussed by CEC Staff in the revised FSA,[7] through "...limiting idling times and requiring, as appropriate, equipment that meets the latest criteria pollutant emissions standards would further minimize greenhouse gas emissions to the extent feasible. The use of newer equipment would increase efficiency and reduce GHG emissions and be compatible with low-carbon fuel (e.g., bio-diesel and ethanol) mandates that will likely be part of the ARB regulations to reduce GHG from construction vehicles and equipment." There are no unmitigated significant GHG emissions associated with construction of CECP.

B. The Project calculation of greenhouse gas emissions was complete and did not need to separately calculate GHG emissions from the combustion of LNG.

In its opening testimony, Intervenor Pacific Environment asserts that the potential greenhouse gas emissions associated with liquefied natural gas (LNG) fuel that may be supplied to the plant should be addressed. (Testimony of Rory Cox, 01/06/2010). A separate calculation of GHG emissions from the Project based on LNG fuel is not needed. The Project will be fueled with CPUC-approved pipeline quality natural gas regardless of the amount of LNG that might make up the source of this pipeline natural gas. Based on information from SDG&E,[8] the subsidiary of Sempra Energy that would deliver the natural gas to the Project, the current gross heating value in its supply pipeline that serves the Encina Power Station is 1,027 Btu/scf, and the primary supply of natural

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[6] CEC. *Revised Sections for the Carlsbad (07-AFC-6) FSA Dated November 2009,* Greenhouse Gas Table 3, page 4.1-107, December 15, 2009.

[7] Ibid, page 4.1-109.

[8] SDG&E. *Gas Specifications of Gas Derived LNG from Energia Costa Azul (ECA) and NOx Emission Levels,* letter to Tim Hemig of NRG Energy, December 12, 2007.

gas derived from ECA LNG would be in the range of 1,034 to 1,099 Btu/scf. The ARB provides emission factors for the CO_2 generated by the combustion of natural gas,[9] including a slight increase of 1.2% for the largest potential increase in gross heating value noted above. The emission factors for CH_4 and N_2O provided by ARB[10] are constant for natural gas fuel, regardless of its gross heating value.

Because the potential future blending of LNG-derived natural gas into any or all of the state's distribution pipelines is unknown at this time, it would be speculative to calculate any change in GHG emissions from this Project or from all other existing and planned power plants fueled with natural gas. Such blending and any associated slight change in GHG emissions would not change the fact that operation of the Project would lead to a net reduction of GHG emissions from the California and Western Interconnect electric power systems. This net reduction in GHG emissions is directly attributable to the Project's operating efficiency, relative to other generating facilities in the western United States. The corollary to the decrease in GHG emissions is a decrease in fuel consumption, most likely to be a decrease in natural gas consumption. Consequently, to the extent the Intervenor's comment is suggesting that the Project would induce an increase in natural gas consumption and thus increase the need for imported LNG, the analyses conducted by both the Staff and Applicant demonstrate that exactly the opposite is likely to be the case.

C. The Project's GHG emissions are not significant, and hence do not need to be offset under prevailing regulations.

In its opening testimony, Intervenor CBD claimed "There is inadequate analysis of potential greenhouse gas mitigations [sic]" (CBD Opening Testimony, pp. 2-3), and Intervenor Terramar complained of the absence of a guarantee to mitigate GHG emissions on a 1:1 or greater basis. (Terramar testimony at p. 12) Although offset requirements are applied to criteria pollutants (see District FDOC and CEC Revised FSA, pp. 4.1-3, 4.1-29, 4.1-41, and 4.1-42 to -43), no regulations exist to require offsetting of GHG emissions at the present time. Furthermore, since the Project's GHG emissions would not cause either direct or cumulatively significant impacts, CEQA does not require mitigation of the GHG emissions from the Project. In the event ARB or the USEPA adopt regulations in the future that require the reduction or mitigation of GHG emissions emitted by the plant, CECP will comply with those regulations.

D. CECP is not presently subject to the requirements of SB 1368, and should those requirements become applicable to CECP in the future, CECP will comply with them.

In its opening testimony, Intervenor Terramar expresses the concern that CAISO could call on enough electric energy from the Project to push the plant's generation past a 60% annual capacity factor. (Terramar testimony at pp. 16-17). The CEC states in three places

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[9] ARB. *Rule Making to Consider Adoption of a Regulation for the Mandatory Reporting of Greenhouse Gas Emissions,* CCR Title 17, Subchapter 10, Article 2, Appendix A, Table 4, page Appendix A-6, December 6, 2007.
[10] Ibid, Table 6, page Appendix A-9.

the inapplicability of SB 1368 requirements. In the first instance, the FSA states "The project, as a peaking or mid-merit project with an enforceable operating limitation less than 60 percent of capacity, is not subject to the requirements of SB1368 (Perata, Chapter 598, Statutes of 2006) and the Emission Performance Standard" (Revised FSA , p. 4.1-1). In the second instance, the FSA states "[t]he Carlsbad Energy Center, as a peaking or mid-merit project with an enforceable operating capacity factor of less than 60 percent is not subject to the requirements of SB1368 and the Emission Performance Standard, although this highly efficient project would meet the CO_2 emission requirements of this standard." (Revised FSA, p. 4.1-59) And in the third instance, the FSA states "Since this power project would be permitted for less than a 60 percent annual capacity factor, and could be considered a peaking/mid-merit generating facility, it is not subject to the requirements of SB 1368 and the Emission Performance Standard." (Revised FSA, p. 4.1-124) In fact, the Project's GHG emission rate of 0.404 metric tons of CO_2 per megawatt hour would be substantially lower than, and would comply with, the SB 1368 limit of 0.5 metric tons CO_2 per MWh. (Revised FSA, p. 4.1-1) The Revised FSA also presents the pertinent SB 1368 definitions that clearly address the issue raised by the Intervenor. (Revised FSA, p. 4.1-128) Not only is the Project efficient enough to satisfy the requirements of SB1368, despite the inapplicability of this law for the CECP, but the CAISO is not allowed to force the CECP, or any other project, to violate any LORS.

Intervenor Terramar worries further that termination of the coal-based contracts listed in Revised FSA Greenhouse Table 10 might not just increase the capacity factor of CECP past 60% all the way to 100%, but that Encina Power Station Units 1-3 could come back into operation. (Terramar testimony, p.17) The Revised FSA describes how not only the approval of CECP, but of other natural gas-fueled power plants and numerous renewable energy projects, is designed to replace the electric energy lost from these terminated coal-based contracts and retired EPS Units 1-3, and simultaneously reduce net GHG emissions. (Revised FSA, pp. 4.1-101, -110, -114, -117, and -118) Once the current Permits to Operate EPS Units 1-3 are surrendered to allow construction of the CECP, those retired units cannot be brought back into operation unless they obtain new Authority to Construct Permits from the SDAPCD, for which they would need to be designed to comply with all current District rules and regulations[11] and all other LORS. (Revised FSA, pp. 4.1-2 through -4)

E. The greenhouse gas cumulative impact analysis was properly performed

In the testimony by the Intervenor City of Carlsbad (City of Carlsbad to CEC, 01/06/2010, testimony, Hogan, p.5, Answer No. 7), the Intervenor claims that the FSA "... fails to identify the past, present and probable future projects which were considered" and then goes on to note that for GHG emissions "...the FSA discusses the CECP's cumulative impacts 'in the context of its effect on the electricity system (FSA, pp. 4.1-119, 123.)'" Yet, the FSA states clearly that "This entire assessment is a cumulative impact assessment." (FSA, Revised December 2009, page 4.1-120). The FSA discusses the CECP GHG emissions also in the context of global GHG emissions and potential

[11] SDAPCD. Rule 20.1 – New Source Review – General Provisions and Rule 20.3 – New Source Review – Major Stationary Sources.

climate change (FSA, Revised December 2009, pages 4.1-103 through 105), the ultimate cumulative impact analysis context, and properly so because the impact of climate change is truly global. In the global context, no local or distant project is omitted from consideration, even if it is unrealistic to list and discuss each in detail.

F. The Project is needed and would deliver positive benefits.

Intervenor CBD claims that the environmental benefits of the Project were improperly weighed compared to the "...additive effect of the project on climate change" as claimed by the intervenor. CBD also claims a lack of adequate analysis to show how the project would help reduce GHG emissions 80% by 2050, and to show that the project, a source of GHG emissions, is needed. The fact that the Project reasonably foreseeably would result in a net reduction of GHG upon its operation is an environmental benefit, and the CEC is not responsible to determine how much this reduction would contribute to the state's 80% goal. The California EPA has the responsibility to coordinate the full suite of actions that would be needed to achieve the 80% reduction by 2050.[12] More generally, the CEC identified the following environmental benefits in the FSA:

- facilitating the retirement of existing EPS Units 1 through 3, which are less efficient (i.e., produce more GHG, criteria pollutants, and toxic air contaminants per unit electric energy generated);
- utilizing existing EPS infrastructure to reduce environmental impacts and costs;
- eliminating the daily need for millions of gallons of once-through ocean water cooling, and its associated fish impingement and biological impacts (entrainment); and
- accomplishing a *brownfield (*land that has already been developed as an industrial use) redevelopment of an existing power plant for a net increase in electrical generation capacity. (FSA, page 1-7)

The need for the Project was described and justified in the context of retiring the less-efficient and ocean water using EPS Units 1-3 (see Revised FSA, page 4.1-119), providing fast start capability and backup generation to supply the electric energy intermittently available from renewable solar and wind power facilities when they cannot produce power (Revised FSA, pages 4.1-115-116), replacing the electric power currently generated by out-of-state coal-fired generating stations (Revised FSA, page 4.1-118). The GHG-protective guarantee is that if the does not operate, then GHG emissions from the California and Western Interconnect systems will remain the same. (CEC. *Revised Sections for the Carlsbad (07-AFC-6) FSA Dated November 2009,* Appendix AIR-1, page 4.1-101, December 15, 2009.)

Some intervenors have asserted that a solar photovoltaic project with the same power rating (558 MW gross) can be constructed and operated for about the same cost. Solar photovoltaic power rated at the same 558 MW capacity as the Project would require

[12] Office of the Governor, Executive Order S -3-05, 6/1/05.

approximately 2,700 to 11,700 acres of desert land or rooftop space[13] compared to the 23 acres[14] required for the Project location within the Encina Power Station boundary.

The cost of PV would approach the limit of $260/MWh set by SCE in its 500MW PV solar procurement,[15] which is twice the typical cost of electric energy from other Renewable Portfolio Standard electric energy of approximately $135/MWh,[16] or the typical cost of natural gas-fueled electric energy in California of $150/MWh.[17]

G. The Project would be in compliance with all laws, ordinances, regulations and standards (LORS).

In their testimony related to GHG emissions, Intervenor Terramar inquires if the Project would violate any laws or norms. (Terramar testimony, p. 9). The CEC clearly states that the Project would comply with all GHG-related LORS on page 4.1-121 of the Revised FSA, and with the LORS for all subjects in the full FSA on page 1-6. (FSA, November 12, 2009). The Applicant agrees, and believes the testimony submitted fully supports this conclusion.

H. The Applicant has proposed an efficient generating technology appropriate to the project's basic objectives.

In opening testimony Intervenor POV comments that the efficiency difference between the F-class and H-class turbines is 12% and that the F-class Siemens turbines proposed for the Project lack commercial experience (POV Opening Testimony, Exhibit 737, 1/5/2010, page 14). On page 5.3-5, the FSA discusses the H-class combustion gas turbines and supports the applicant's selection of the F-class turbine as follows:

> "Another possible alternative to the F-class advanced gas turbine is a H-class next generation machine with a claimed fuel efficiency of 60 percent LHV at ISO conditions. This high efficiency is achieved through a higher pressure ratio and firing temperature, made possible by cooling the initial turbine stages with steam instead of air. This first Frame 7H application is currently under construction at the Inland Empire Energy Center in Riverside County, California. Given the lack

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[13] Based on a net output of 540 MW from the CECP for a proposed normal operating time of 3,500 hours per year, and a potential photovoltaic electric energy density of 40 to 170 kWh/year per square meter of land for different photovoltaic array configurations (Denholm, Paul and Robert M. Margolis. *Impacts of Array Configuration on Land-Use Requirements for Large-Scale Photovoltaic Deployment in the United States,* National Renewable Energy Laboratory Preprint Conference Paper NREL/CP-670-42971, *http://www.nrel.gov/docs/fy08osti/42971.pdf*)

[14] CEC. *Preliminary Staff Assessment, Carlsbad Energy Center Project, Application for Certification (07-AFC-6), San Diego County,* Document CEC-700-2008-014-PSA, December 2008.

[15] SCE. *SCE Solar PV Program,* pages 13, 19, July 31, 2009, *http://www.cpuc.ca.gov/NR/rdonlyres/6872F3D2-556E-42B1-ADD2-.E2630F65EDD5/0/SCEPresentationforSolarPVProgramWorkshopfinalv2.ppt#600,20,7*) Evaluate Offers and Select Projects

[16] CPUC. *Decision Addressing a Solar Photovoltaic Program for Southern California Edison Company,* Section 4.3.2, Decision 09-06-049, June 18, 2009, *http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/102730-03.htm#TopOfPage.*

[17] U.S. Energy Information Administration. *Table 5.6.A - Average Retail Price of Electricity to ultimate Customers by End-Use Sector, by State,* September 2009, *http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_a.html*

> of commercial experience with this machine and the project load requirements, staff agrees with the applicant's decision to use F-class machines. ... Also, the above alternative power generating equipment do not offer the commercially available fast start capability incorporated in the Siemens' equipment selected for this project."

Intervenors Center for Biological Diversity (CBD) and the City of Carlsbad (City) had similarly claimed that the Applicant failed to propose more efficient G-class combustion gas turbines as well as H-class turbines for the Project. (SDAPCD to public, 11/19/09, page 24) (CBD to CEC, 02/02/09, page 4). At page 5.3-5, the FSA also discusses the G-class combustion gas turbines and supports the applicant's selection of the F-class turbine as follows:

> "One possible alternative to an advanced F-class gas turbine is the next generation G class machine, such as the Siemens-Westinghouse 501G gas turbine generator, which uses partial steam cooling to allow slightly higher temperatures, yielding slightly greater efficiency. In actual operation, one would expect to see the difference in efficiency diminish, since larger-capacity G-class turbines run at less than optimum (full) output more frequently than smaller-capacity F-class turbines. (Gas turbine efficiency drops rapidly at less than full load.). Given the minor efficiency improvement promised by the G-class turbine, and since this machine would have to operate at less than optimum base load efficiency in order to meet the project load capacity requirements, staff believes the applicant's decision to purchase F-class machines is reasonable."

The Applicant's selected technology is appropriate to meet the project's proposed objective of providing rapid-start capability to the serving utility, with efficiency levels typical of modern combined cycle plants. In a similar discussion of efficiency for another combined-cycle power plant project[18], CEC staff noted that the efficiency of the proposed Siemens SCC6-5000F gas turbine can reach 57.3% (LHV at ISO conditions) in a two-on-one combined-cycle configuration. The lower efficiency of the same turbine in the two-on-two combined-cycle configuration results from provision of the rapid-start capability that is valuable for matching the rapid rise of electric power demand that occurs in late afternoon, especially on hot days.

The proposed gas turbine clearly does not lack commercial experience having more than 5,400,000 hours of fleet operation.[19]

As shown in the FSA, there are no unmitigated, significant environmental impacts related to GHG emissions from the project that would be mitigated through the use of these larger turbines.

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[18] CEC. *Final Staff Assessment, Avenal Energy, Application for Certification (08-AFC-1), Kings County,* page 5.3-4, June 2009.

[19] Siemens, *Gas Turbine SGT6-5000F,* http://www.energy.siemens.com/hq/en/power-generation/gas-turbines/sgt6-5000f.htm.

EXHBIIT 144

REBUTTAL TESTIMONY IN SUPPORT OF ALTERNATIVES

Applicant's Rebuttal Testimony
for
Alternatives

Applicant's Witness: **Robert Mason**
David A. Stein, PE

Date: **January 14, 2010**

1. The project objectives are sufficiently broad and clearly delineated.

The City claims that "while the CECP's project objectives are general in nature, they can be misinterpreted and/or are constrained to the point which precludes any other site from consideration." (Garuba Testimony at 3). The FSA, however, clearly articulates six project objectives that are sufficiently broad to include consideration of alternative sites. The project objective that seeks to "utilize existing infrastructure to accommodate replacement generation and reduce environmental impacts and costs" reflects sound policy and does not preclude consideration of alternative sites.

2. The project alternatives identified in the FSA are comprehensive.

The FSA considers a comprehensive list of alternative sites. In addition to providing a comprehensive evaluation of three alternative sites (Maerkle, Carlsbad Oaks North, and CATO), Staff also considered alternative sites that it determined did not merit comprehensive evaluation (Carlsbad Safety Center Site and Encina Wastewater Authority Site). Accordingly, the FSA considers a reasonable range of alternatives to the project.

The fact that the FSA identified six alternative sites for evaluation, of which three were analyzed in detail, supports that the six project objectives are sufficiently broad to include the consideration of a reasonable range of alternatives. In fact, the alternatives analysis in the FSA included the two sites the City considers to be preferable to the CECP: Oaks North Phase 3 site and the Fleet Service site (adjacent to the Carlsbad Safety Center site analyzed in the FSA). For the City to argue in its opening testimony that the project objectives in the FSA "...can be misinterpreted and/or are constrained to the point which precludes any other site from consideration" ignores that fact that the FSA analyzed five sites, including the two sites the City considers to be preferable to the CECP.

3. The Carlsbad Oaks North alternative is not environmentally superior or preferable to the CECP.

Land Use and Zoning: In its opening testimony, the City states that the Carlsbad Oaks North Phase 3 site complies with land use LORS and that the zoning of this site would not need to be changed to allow a power plant similar to the CECP. This finding by the City is fundamentally incorrect, based on the following:

- The Carlsbad Oaks North site has a Planned Industrial (PI) General Plan designation and Planned Industrial (PM) Zoning designation. A Specific Plan has also been approved for the property.

- The PM zone (Chapter 21.34 of the City Municipal Code) does not include power plants as a Permitted Use, nor as a Conditional Use. Therefore, as noted in the FSA, a change in zoning designation would be required for a power plant similar to the CECP to be located at this site.
- The only CUP allowances in the PM are for ancillary/auxiliary uses to support Permitted Uses; and limited commercial uses to service the zone.
- The City's General Plan, under the Industrial land use section of the Land Use Element, establishes Implementing Policy C.9 to address the proper use of CUPs in the Planned Industrial General Plan land use designation, as follows: "Allow, by conditional use permit, ancillary commercial, office and recreational uses when clearly oriented to support industrial developments and their populations. These include, but are not limited to, commercial services, conference facilities, daycare centers, recreation facilities and short-term lodging." Clearly, there is no contemplation or allowance for a power plant to be approved by Conditional Use Permit under the PM zone, or the Planned Industrial General Plan designation.
- In addition, the governing specific plan for the Oaks North site (which implements the General Plan designation of Planned Industrial) has no allowance or provision for the approval of power plant via Conditional Use Permit. Pages III-1 and III-2 of the specific plan outline Permitted and Auxiliary (Conditional) Uses. No land use allowance of any kind is made in the Specific Plan for the review or approval of a power plant land use.
- Therefore, the statement in the City's opening testimony that: "A new power plant at Oaks North may be accommodated through the issuance of a Conditional Use Permit." is incorrect and a CUP is not available based on the current code provisions.

In the City's opening testimony, it poses a question regarding whether the zoning of the Oaks North site would need to be changed to accommodate a CECP-type power plant. The City claims that the Oaks North site is a highly suitable location for a power plant that is a heavy industrial use. The City also claims that a power plant at the Oaks North site would not result in land use incompatibility. Both of these positions are not correct based on the following:

- Both the PM zone and Specific Plan text (Section A. Permitted Uses, page III-1) stipulate that light to medium industrial uses are intended onsite. Promoting 'heavy' industry is directly counter to, and inconsistent with, the City's zoning ordinance, the governing specific plan and General Plan. The SP states on page III-1: "Uses in Carlsbad Oaks North Business Park will be limited to light and medium industrial uses, research and development uses, industrial support and service uses, and professional offices, provided that such uses are confined within a building or buildings, and do not contribute excess noise, dust, smoke, vibration, odor or toxic or noxious matter to the surrounding environment nor contain a high hazard potential."
- The Oaks North Specific Plan also includes a section on compatibility with adjacent residential uses and related performance standards for the light-industry nature of the uses intended for the Specific Plan area.

Airport Land Use Compatibility Plan (ALUCP): In the proposed Airport Land Use Compatibility Plan (ALUCP) for the McClellan-Palomar Airport, which is scheduled for adoption perhaps as early as January 25, 2010, most of the Oaks North is within the proposed

Airport Safety Zone 6. The proposed ALUCP indicates that no new power plants will be allowed in Zone 6, with the exception that new peaker plants are listed as a "conditionally compatible use." While there is no definition of "peaker" in the ALUCP, the ALUCP advisor panel determined that the most likely measure would be 49.9 MW based on the CEC having jurisdiction on power plants that are 50 MW or greater. The ALUCP limits the size of power plants to avoid adverse safety impacts to low flying aircraft in Zone 6. It is reasonable to assume that the ALUCP does not contemplate power plants of the size of the CECP in Zone 6 around the McClellan-Palomar Airport.

Thermal Plume for Power Plants and Affect on Aviation Safety: The FSA also notes that the Oaks North site has uncertainties regarding aviation safety. The FSA states that while the City has obtained an FAA Feasibility Study for the Oaks North site (previously docketed by the City), that Feasibility Study was limited to stack height and was a preliminary finding only, and a different finding may be found based on additional analysis by the FAA. Specifically, the preliminary FAA study did not address or consider the potential for thermal plumes from a power plant stack at this location and its negative impacts on low flying aircraft. In fact, at the PSA workshop for the CECP, a representative of the FAA, David Butterfield, made a presentation (a copy of the PowerPoint slides presented is included with this rebuttal testimony, see Applicant's exhibit entitled "FAA Presentation re Flight Standards Assessment" (01/08/2009)). As noted in that presentation, due to the elevated topography of the Oaks North site, there is a potential increase in risk to aviation due to thermal plumes and the low level flight path over the Oaks North site and additional study would be warranted.

The CEC has used a thermal plume analysis protocol in several recent power plant licensing cases. Using this protocol, a thermal plume analysis for the Oaks North and Maerkle alternative sites, both of which were suggested to applicant by the City, was conducted, as well as for the CECP site (see applicant's exhibit entitled "Preliminary Estimate of Vertical Plume Velocities for the Carlsbad Energy Center Project" (10/21/2010)). The results of this analysis indicate that the critical vertical velocity for the plume from a power plant stack (based on the proposed CECP power plant equipment and configuration) would extend into the flight path to the McClellan-Palomar Airport. While this analysis is preliminary, it indicates that a power plant at the Oaks North site would have a thermal plume that could result in adverse safety impacts to low fly aircraft in the flight pattern for the McClellan-Palomar Airport; the analysis showed that a plume from the CECP site would not result in a similar adverse safety impact.

Comparison of Environmental Impacts: Proposed Project and Alternative Sites: A key finding of the environmental impacts analysis of the CECP in the FSA is that the environmental impacts associated with the CECP are either less than significant or that with the inclusion of the Conditions of Certification in the FSA that the impacts will be reduced to below a level of significance. Under the Warren-Alquist Act, as in the California Environmental Quality Act, the purpose of the alternatives evaluation is to determine if an alternative to a proposed project would avoid or substantially lessen environmental impacts of the project which are significant and cannot be mitigated to below a level of significance.

Notwithstanding that the FSA has found that the impacts of the CECP can in fact be fully mitigated to a less than significant level, the FSA includes a table comparing the impacts of the

CECP to the impacts that would occur at the three alternatives sites evaluated in detail in the FSA. As shown in the FSA's Alternatives Table 2 – Comparison of Impacts to the Proposed CECP, none of the alternative sites evaluated by CEC staff, including the Oaks North site would avoid or substantially lessen the environmental impacts of the CECP.

4. The Carlsbad Safety Center/Fleet Service Center alternative is not environmentally superior or preferable to the CECP.

Land Use and Zoning: Based on a recommendation from the City, the FSA evaluated the Carlsbad Safety Center as an alternative site for the CECP. The City's opening testimony included the Fleet Service Center as an alternative site for the CECP and noted that the Fleet Services Center site is referred to in the FSA as the Carlsbad Safety Center. However, this statement is not completely accurate, as the Fleet Services Center site is actually adjacent to the north side of the Carlsbad Safety Center site.

The City's opening testimony indicates that the Fleet Service Center is "...located in the middle of an industrial park, next to a trash transfer station and a shooting range." However, the Fleet Service Center is located on Open Space designated land with Open Space to the north, south and east. It is adjacent to industrial use to the west. The shooting range is a planned facility on the Carlsbad Safety Center site where an existing sports field is currently located. The trash transfer station is located south of Faraday Avenue (an arterial roadway) and is not immediately adjacent to the Fleet Service Center. The Fleet Services site is on a prominent knoll which is highly visible to existing and future residential development to the north beyond the Open Space area.

Regarding whether the Fleet Service Center would need to be rezoned from Open Space to Industrial in order for a CECP-type power plant to be located on the site, the City's opening testimony indicated that the Open Space designation provides for a variety of government uses which may allow a CECP-type power plant with a Conditional Use Permit. However, it is acknowledged by the City that amending the land use designation of the site may be required to accommodate a new power plant. Assuming an amended land use designation is required, this would need to be accomplished through a General Plan amendment.

Comparison of Environmental Impacts: Proposed Project and Alternative Sites: A key finding of the environmental impacts analysis of the CECP in the FSA is that the environmental impacts associated with the CECP are either less than significant or that with the inclusion of the Conditions of Certification in the FSA that the impacts will be reduced to below a level of significance. Under the Warren-Alquist Act, as in the California Environmental Quality Act, the purpose of the alternatives evaluation is to determine if an alternative to a proposed project would avoid or substantially lessen environmental impacts of the project which are significant and cannot be mitigated to below a level of significance.

Notwithstanding that the FSA has found that the impacts of the CECP can in fact be fully mitigated to a less than significant level, the FSA includes a table comparing the impacts of the CECP to the impacts that would occur at the three alternatives sites evaluated in detail in the FSA. As shown in the FSA's Alternatives Table 2 – Comparison of Impacts to the Proposed

CECP, none of the alternative sites evaluated by CEC staff would avoid or substantially lessen the environmental impacts of the CECP.

In the FSA, CEC staff evaluated the Carlsbad Safety Center site based on a recommendation from the City that it could be a viable alternative site for a power plant. In it evaluation in the FSA, CEC staff found that the development of this site would require the relocation of existing recreational areas (located on the site the City is now referring to as the Fleet Service Center) and relocation of police and fire facilities (which are located on the Carlsbad Safety Center site). Based on the need to relocate public services from the site, CEC staff eliminated it from further consideration in the FSA.

While the City states in its opening testimony that the Fleet Service Center is a viable alternative site for a power plant, it is acknowledged in by the City that amending the land use designation of the site may be required to accommodate a new power plant. Assuming an amended land use designation is required, this would need to be accomplished through a General Plan amendment. In addition, the Fleet Service Center and the adjacent Carlsbad Safety Center are located entirely within the proposed Airport Safety Zone 6. As discussed above, the proposed ALUCP indicates that no new power plants will be allowed in Zone 6, with the exception of new peaker plants, listed as a "conditionally compatible use. It is, however, reasonable to assume that the ALUCP does not contemplate power plants of the size of CECP in Zone 6 around the McClellan-Palomar Airport.

EXHBIIT 145

REBUTTAL TESTIMONY IN SUPPORT OF BIOLOGICAL RESOURCES

Applicant's Rebuttal Testimony
for
Biological Resources

Applicant's Witness: **John Steinbeck** *Date:* **January 14, 2010**

1. The Carlsbad Energy Center Project ("CECP") does not cause additional impingement and entrainment impacts; it reduces impingement and entrainment impacts.

The City contends that the CECP has potential foreseeable biological resource impacts as a result of ocean water withdrawals from the Agua Hedionda Lagoon (Barberio, p.2) and thus does not conform with Coastal Act, both of which is s inaccurate. The CECP will replace Units 1–3 at the Encina Generating Station ("EGS"), eliminating 225 million gallons per day of seawater intake flow from the Agua Hedionda Lagoon required for once-through cooling of Units 1–3. The new units proposed for CECP (Units 6 and 7) will not require the use of any additional seawater beyond what will be used by EGS Units 4 and 5.. As a result, the CECP will not result in any impingement and entrainment. In fact, the elimination of the seawater intake flow for Units 1–3 will reduce the current levels of impingement and entrainment at the EGS.

EXHBIIT 146

REBUTTAL TESTIMONY IN SUPPORT OF CUMULATIVE IMPACTS

Applicant's Rebuttal Testimony
for
Cumulative Impacts

Applicant's Witness: **Robert Mason** *Date:* **January 14, 2010**

1. The identified projects are comprehensive and adequate.

The City claims that the FSA "fails to identify the past, present and probable future projects which were considered." (Hogan Testimony at 5). The FSA, however, considers the cumulative impacts of probable future projects that are relevant to each specific resource area based on the nature of the resource. For example, in its discussion of Visual Resources, the FSA considers the cumulative impacts that would result as a combination of the CECP, the Carlsbad Seawater Desalination Project ("CSDP"), the decommissioning of Units 4 and 5, the Coastal Rail Trail, North Coast Interstate 5 HOV/Managed Lanes Project, an undeveloped parcel located directly east of I-5 identified by the City, the City's Sewer Interceptor and Lift Station Projects, and the LOSSAN double-tracking project. (FSA at 4.12-24 – 30). Here, the FSA included analysis of all of the future projects the City claims should be analyzed. When considering other resource areas, however, the FSA properly omitted analysis of some of these future projects, because they are not likely to have any impact on that resource area, cumulative or otherwise, or any potential impacts are not possible to ascertain at this time. For example, the FSA did not consider the cumulative impacts on Traffic of the decommissioning of Units 4 and 5 because it is unclear when that event will occur, and, therefore, that project is not relevant to the resource area.

In any event, Applicant does not object to the City's suggestion that the Commission, if it is so inclined, include a list of probable future projects that are appropriate for consideration in the cumulative impacts analysis for each resource area.

2. The Carlsbad Seawater Desalination Plant, I-5 Widening Project, and LOSSAN Project were addressed sufficiently in affected topical areas.

The City implies that the FSA should have considered the cumulative impacts of the CSDP, the I-5 Widening Project, and the LOSSAN Project in connection with every resource area. (Hogan Testimony at 9-10). The CSDP, I-5 Widening, and LOSSAN projects were addressed sufficiently in the affected topical areas. Regardless of the status of project approvals or project development, the FSA adequately considered these projects where necessary to do so.

3. The Sewer Lift Station is a minor project that was sufficiently analyzed and considered.

The City implies that the FSA should have considered the cumulative impacts of the Sewer Lift Station in connection with every resource area. (Hogan Testimony at 9-10). The Sewer Lift Station, however, is a minor project that proposes to use a relatively limited amount of land. Nonetheless, the FSA analyzed the cumulative impacts of the Sewer Lift Station in its

analysis of Land Use, Traffic, Visual Resources and Waste Management (by reference to Multiple Capital Improvement Projects).

4. The Coastal Rail Trail is an uncertain, imprecise potential future project that was adequately evaluated given the uncertainty of the project.

The City implies that the FSA should have considered the cumulative impacts of the Coastal Rail Trail in connection with every resource area. (Hogan Testimony at 9-10). The location of the Coastal Rail Trail, however, remains unknown. The Coastal Rail Trail is an uncertain, imprecise potential future project. Nonetheless, the FSA analyzed the cumulative impacts of the Coastal Rail Trial in its analysis of Land Use, Traffic, and Visual Resources. This analysis was adequate given the uncertainty of the project.

5. The decommissioning of Units 4 and 5 is an uncertain potential future event that was adequately considered and evaluated.

The City implies that the FSA should have considered the cumulative impacts of the decommissioning of Units 4 and 5 in connection with every resource area. (Hogan Testimony at 9-10). The decommissioning of Units 4 and 5, however, is an uncertain potential future event. There is no timeline for the decommissioning of Units 4 and 5. Nonetheless, the FSA analyzed the cumulative impacts of the decommissioning of Units 4 and 5 in its analysis of Visual Resources.

6. The City has no present land use rights to construct the sewer replacement and upgrade project in 2010.

In its description of the sewer replacement and upgrade project, the City states that construction of the portion of the project proposed for the CECP site "is expected to begin in 2010." (Hogan Testimony, Attachment 1 at 4). This statement is inaccurate and misrepresents the nature of this future project. The Applicant has control of the property and the City has not secured the real property rights necessary for construction of the sewer upgrade project. Project permitting would also need to be accounted for in this schedule.

EXHBIIT 147

REBUTTAL TESTIMONY IN SUPPORT OF LAND USE

Applicant's Rebuttal Testimony
for
Land Use

Applicant's Witness: **Ronald W. Rouse** *Date:* **January 14, 2010**

1. Power generation is authorized under the LORS applicable to the CECP.

The Encina Power Station (EPS) property is designated for electric power generation purposes under all applicable local laws, ordinances, regulations and statutes (LORS). The CECP is located entirely within the existing footprint of the EPS property. Thus, the CECP is proposed to be located in an area that is consistent with applicable land use LORS. The CECP is not a new use being introduced into an area, but rather, the modernization and replacement of a portion of the existing EPS electrical generation facilities, which is a clearly permitted use under all applicable LORS. The overall thrust of the City's testimony is directed at expressing the City's opposition to continued electrical power generation uses at the site. The City's testimony consistently focuses on its evaluation of the desirability of the CECP, rather than compliance with applicable LORS. Simply stated, the City's testimony does not establish any inconsistency with existing LORS.

2. CECP is consistent with the General Plan.

The City's General Plan designates the EPS property as "U" (Utility). The "U" classification expressly allows for the generation of electrical energy, treatment of waste water, and other primary utility functions designed to serve all or a substantial potion of the community. Clearly and unambiguously, the CECP fits within the clear purpose and scope of allowed uses for this land use classification under the General Plan.

The thrust of Mr. Donnell's testimony is that if the City were undertaking a comprehensive overhaul of its General Plan, it might elect to consider other uses for the EPS property or the CECP site, but the fact remains, the CECP is fully consistent with the existing General Plan "U" classification. The entire EPS facility area is within the "U" classification and CECP implements a permissible electrical generating use and a primary utility function consistent with the General Plan.

3. CECP is consistent with the City's Zoning Ordinance as an authorized use in the Public Utility Zone.

Under the express provisions of the Carlsbad Zoning Ordinance, the applicable zoning designation for the entire EPS property and the CECP area is "P-U" (Public Utility). Chapter 21.36 of the Zoning Ordinance, Section 21.36.020, expressly authorizes various uses and structures, including the "generation and transmission of electrical energy" and associated ancillary support facilities. As such, the CECP is fully consistent with the Zoning Ordinance. In turn, this zoning designation is fully consistent with the General Plan "U" designation.

4. CECP is consistent with Specific Plan 144 and an amendment to SP 144 is not required for CECP.

Authorized Uses: Specific Plan 144 (SP 144) is a zoning/land use tool applicable to the CECP area and the larger EPS property, as well as hundreds of adjacent acres that are not zoned or designated for electrical energy generation and transmission uses. However, with respect to the area in question, SP 144 expressly anticipates electrical generation and transmission uses on the EPS property, including the area proposed for the CECP. SP 144 also contains other development standards applicable to the EPS and CECP areas, including a recognition of future electric generation facilities which may exceed the 35 foot height standard applicable to other (non-electric generating) structures. SP 144, Section III states in part:

> "The heights of future power generating buildings and transmission line tower structures shall be of heights and of a configuration similar to existing facilities .... No other structure or building shall exceed thirty five feet (35') unless a specific plan is approved at a public hearing."

This statement acknowledges the ongoing, dynamic nature of possible future electric generation uses, recognizing that electric power generation and transmission facilities are an exception to the City's general 35 foot height standards at the CECP site.

Comprehensive Amendment to SP 144: SP 144 covers hundreds of acres (and additional property owners) not implicated in the CECP nor being used in connection with electrical energy generation at EPS. As such, the City has frequently expressed the desire/intent to undertake a comprehensive update of the entire SP 144 area, but to date, has not done so, nor has any other property owner initiated a comprehensive update. Until updated, the existing SP 144 remains the specific plan in place and applicable to this property, designating the entire EPS property for electrical generation uses. Further, at the time the Precise Development Plan 00-02 was first submitted, the City expressly excluded the EPS property from any requirement of a comprehensive plan update, thus perpetuating the existing authorized electric power generation uses throughout the EPS property, including by definition, the CECP area. Regardless of what the City may want or do in the future, the City does not and cannot refute that electrical generation is an expressly authorized use under the current SP 144.

5. CECP is consistent with South Carlsbad Coastal Redevelopment Plan and satisfies the "extraordinary public purpose" requirement.

As acknowledged by the testimony of Ms. Fountain (City Housing and Redevelopment Director), one of the underlying goals of the South Carlsbad Coastal Redevelopment Plan (SCCRP) was to realize a modernization over time of the existing EPS. The SCCRP specifically includes the following goal: "Facilitate the redevelopment of the Encina Power Generating Facility to a physically smaller, more efficient generating plant." Further, the "smaller, more efficient" plant was to be located on the eastern portion of the existing EPS site between the AT&SF railroad tracks and Interstate 5, precisely the location of the CECP. While the City now contends otherwise, it is clear that not only is the CECP fully consistent with the SCCRP, the CECP furthers the goals and policies of the SCCRP, as the CECP includes the concurrent de-commissioning of the three oldest EPS Units

1-3 and represents modernization and efficiency improvements while utilizing existing electrical transmission infrastructure in place.

The CECP also includes "extraordinary public purposes" or benefits. The CECP will have the following pubic benefits and purposes:

(1) result in the concurrent de-commissioning of the three oldest steam boiler units at EPS;

(2) reduce the current EPS facility's demand for once-through ocean water cooling through the retirement of Units 1-3 at EPS;

(3) replace less efficient, higher polluting generation units with modern, more efficient and less polluting units;

(4) result in additional tax revenues to the City as a result of the construction/valuation of the CECP and natural gas franchise taxes;

(5) be a step toward potential future redevelopment of the western portion of the EPS site for non-power plant purposes as the CECP occupies only a small portion of the existing EPS site that is very constrained in terms of potential future uses, located between the railroad tracks, Interstate 5 and City sewer pump station/sewer interceptor facilities; and

(6) enhance the incorporation and penetration of renewable energy generation supplies into the local grid from locations outside the region.

6. CECP is consistent with the California Coastal Act and Associated Aqua Hedionda Land Use Plan.

Compliance with the California Coastal Act is established by the CECP's consistency with the Coastal Commission-certified Agua Hedionda Land Use Plan (AHLUP). The AHLUP was developed by the City initially, and submitted to the Coastal Commission for certification of the City's overall local coastal program covering all portions of the City within the Coastal Zone. The AHLUP segment covers approximately 1,100 acres, initially adopted and certified in 1982, and amended from time to time with the ongoing consent/certification of the Coastal Commission. In each instance, Coastal Commission findings were made that the AHLUP is consistent with the Coastal Act policies and standards. The AHLUP expressly recognizes electrical power generation at the EPS site as an authorized use, found consistent with the Coastal Act.

The CECP is fully consistent with the expressly allowed uses of the AHLUP. The CECP represents a modernization of an existing Coastal Zone power generating facility and results in significant environmental benefits. CECP's commencement of commercial operations concurrently with the de-commissioning of EPS Units 1-3 will result in substantial environmental benefits as a result of: reducing significantly the volume and impacts of using ocean water to cool the retired units; reducing the amount of air emissions compared to the rate of emissions of the older units that will be de-commissioned; and facilitating the eventual redevelopment of the westerly portion of the EPS for non-power generating uses, thereby significantly reducing the amount of Coastal Zone property utilized for power generation purposes.

7. The Precise Development Plan is a permit, not a plan or an ordinance, and does not restrict the design or operation of CECP.

Under the City's layered land use regulatory program, a Precise Development Plan (PDP) functions as an implementing permit, rather than an applicable LORS regulating allowable land uses. Its function is to document actual development of properties under the City's P-U zoning designation in terms of compliance with applicable use and other standards; it does not impose standards per se, nor is it the vehicle for establishing allowable land uses. A PDP generally, and in particular, PDP 00-02, does not itself establish permitted uses or regulations and must be fully consistent with the other applicable LORS discussed above. As such, the existing PDP 00-02 for the EPS property merely catalogues the existing electrical generating facilities in place, and confirms the design and other elements associated with the desalination facility. PDP 00-02 does not restrict the design or operation of the CECP, as it simply is a catalogue of existing authorized uses, not a separate authorization of use.

8. CECP does not preclude the Coastal Rail Trial, which can be located west of the railroad tracks.

Under PDP 00-02, providing for the existing EPS facility and the City's proposed desalination facility, the City imposed an exaction requiring the desalination project developer (Poseidon) to cause the underlying property owner, Cabrillo Power, to dedicate an easement for the City's Coastal Rail Trail in a mutually agreeable location somewhere on the EPS site. The phrase "mutually agreeable" was included to provide some flexibility in connection with the long contemplated modernization of the EPS, foreshadowed the CECP, and generally reflects that it might be necessary to restrict public access to the EPS property, including the future CECP site, or otherwise locate the public access components on the west side of the tracks, closer to the ocean and other public areas.

Cabrillo Power and City representatives have met several times to discuss a "westerly alignment" to avoid the safety risks associated with an alignment east of the tracks in the CECP area. A feasible alignment has been suggested by Cabrillo west of the tracks, that has the added benefit of connecting to the existing Rail Trail alignment south of Cannon Road, which is also west of the tracks and continues on the west side all the way to Carlsbad's southern city limits. The westerly alignment is workable and feasible, bringing the Rail Trail closer to the ocean and other public access opportunities. The CECP does not preclude or interfere with this westerly alignment.

EXHBIIT 148

REBUTTAL TESTIMONY IN SUPPORT OF NOISE AND VIBRATION

Applicant's Rebuttal Testimony
for
Noise

Applicant's Witness: **Mark Bastasch** *Date:* **January 14, 2010**

Based on the testimony submitted by TerraMar and Power of Vision, the following highlights where the AFC addresses concerns raised and provides additional explanation of the technical information contained in the acoustical analysis of the CECP project. The California Energy Commission (CEC) siting process establishes a complaint resolution process for CECP (Condition of Certification NOISE-1 and NOISE-2). Inaudibility is not a requirement established by CEQA or any applicable laws, ordinances or standards.

1. The ambient noise survey and CEC staff's evaluation of the ambient noise survey data is conservative.

The CEC staffs evaluation of the measured ambient levels is focused on the L_{90} metric (FSA NOISE Table 2 and 6). The L_{90} metric is more restrictive than the CNEL metric on which the City of Carlsbad General Plan Noise Element and Noise Guidelines Manuals are based. The L_{90} metric is representative of the noise level exceeded 90 percent of the time or conversely it is representative of the quietest 10 percent (AFC Section 5.7.3 and Table 5.7-2). That is, L_{90} reflects the noise level during the lull or relative quiet between passing vehicles or other intermittent sources of noise. In addition, the ambient noise survey means and methods used for CECP are consistent with other projects permitted by the CEC - many of which are currently operating under licenses granted by the CEC.

2. Gas turbine generators, heat recovery steam generators and ancillary equipment similar to that proposed for the CECP is not significantly different than equipment used at other power facilities.

Equipment vendors provide noise levels for new models of equipment based on detailed engineering analysis and experience. Gas turbine generators, heat recovery steam generators and ancillary equipment similar to that proposed for the CECP have been successfully installed at numerous locations. In addition, the CEC staff has proposed Conditions of Certification NOISE-4 that require CECP to comply with specific noise levels. CECP must demonstrate compliance with the specific overall and tonal noise limitations. In addition, Conditions of Certification NOISE-1 and NOISE-2 establish a complaint resolution process. The conditions imposed by the CEC are established to minimize the potential for annoyance. Non-acoustic factors such as fear of the noise source or attitude towards the source have been noted to correlate with how one perceives the noise (i.e., annoyance). Therefore, no Condition of Certification can eliminate the potential for someone to be annoyed by non-acoustic factors such as their attitude towards the project and having such a Condition of Certification is not required by any applicable standard.

3. Geometric divergence results in a 6 dB reduction per doubling of distance.

Geometric divergence alone results in a 6 dB reduction per doubling of distance from a point source (i.e., a pump or motor) and a 3 dB reduction per doubling of distance from a line source (i.e., a highway). The CEC staff has imposed Conditions of Certification that require the CECP to comply with specific noise levels. CECP must demonstrate compliance with these overall limits, regardless of modeling assumptions (though it should be noted the lagoon was modeled as hard reflective surface). The CEC staff has also established a noise complaint resolution process outlined in Condition of Certification NOISE-1 and NOISE-2.

4. The potential for reflections are addressed as part of detailed design and do not hinder the projects ability to comply with the Conditions of Certification.

A perfect reflection may result in a 3 dB increase, the threshold of a perceivable difference. In practice, reflections are not perfect and are not expected to result in noticeable increases in noise levels. Reflection can be taken into account and, if warranted, absorptive treatments can be incorporated during detailed design. CECP must be designed and operated in a manner that complies with the CEC Conditions of Certification and the potential for reflections does not affect CECP's ability to comply.

5. The CEC staffs approach minimizes the potential for a cumulative noise concern resulting from the potential widening of I-5.

As indicated on page 4.6-27 of the FSA, "Combination of Sound Levels", doubling in the number of noise sources would result in a 3 dBA increase. That is, a doubling in traffic volume along I-5 would be expected to result in a 3 dBA increase. Such an increase would be considered the threshold of a perceptible increase and would represent a very significant modification to I-5. It may also be helpful to note that the Caltrans and the Federal Highway Administration Noise Abatement Criteria (NAC) are based on the peak hour L_{eq}. The L_{eq} is the energy averaged (logarithmic) level and is always greater than the L_{90} metric used by the CEC staff. That is, Caltrans evaluates the loudest hour of the day and the loudest portion of that hour whereas CEC staff evaluate the quietest portion of the day and the quietest portion of those hours.

EXHBIIT 149

REBUTTAL TESTIMONY IN SUPPORT OF SOCIOECONOMIC RESOURCES

Applicant's Rebuttal Testimony
for
Socioeconomics

Applicant's Witness: **Christopher Morrow, AICP** *Date:* **January 14, 2010**

1. The Carlsbad Energy Center Project ("CECP") uses a small portion of the Encina Generating Station property that is very constrained and challenging to use, and provides significant positive socioeconomic benefits for the city and the region.

The City of Carlsbad presented testimony alleging that the CECP has adverse socioeconomic consequences because the proposed use is not the best use of the site and because CECP does not fit with the City's conceptual plans for the Encina Generating Station. This testimony is incorrect and ignores the industrial uses of the land that the City has recently approved which are much more likely to constrain the future use of the property.

Stated simply, CECP will be built in a nearly difficult to access section of land between a railroad track and a busy freeway. The land currently has oil tanks on it and is recessed in a bluff – the same location for CECP that will limit most of the visibility of CECP. CECP allows retirement of three older power generating units in the nearly 60 year old, existing Encina Generating Station. In addition to having no significant environmental impacts and being barely visible, CECP will produce construction jobs and significant tax revenue. CECP will have only minimal connections with or uses of and on the area west of the railroad tracks – the area adjacent to the coastal highway and the beach.

In contrast to their actions in connection with the CECP, the City has actively sought, approved and is supporting an industrial facility, a desalinization plant, which will occupy in excess of 10 acres on the property west of the railroad tracks and adjacent to the lagoon and beach with both its leasehold interest and non exclusive easements. The City's inconsistent support/opposition of the currently proposed land uses at the existing Encina Power Station (EPS) cannot be ignored or reconciled.

The City is ignoring CECP's significant positive socioeconomic and environmental benefits. CECP will:

(a) result in the concurrent de-commissioning of the three oldest steam boiler units at EPS;

(b) reduce the current Encina Generating Station demand for once-through ocean water cooling through the retirement of Units 1-3;

(c) replace less efficient, higher polluting generation units with modern, more efficient and less polluting units;

(d) result in additional annual tax revenues to the City of Carlsbad, the Carlsbad Redevelopment Agency and San Diego County as a result of the construction and operation of the CECP, and natural gas franchise fees;

(e) represent a significant first step toward potential future redevelopment of the western portion of the Encina Generating Station site for non-power plant purposes; and

(f) enhance the incorporation and penetration of renewable electrical energy generation supplies into the local grid.

In summary, CECP serves the interests and furthers the goals of the City of Carlsbad and the region.

EXHBIIT 150

REBUTTAL TESTIMONY IN SUPPORT OF VISUAL RESOURCES

Applicant's Rebuttal Testimony
for
Visual Resources

Applicant's Witnesses: **Marsh Gale, Bob Wojcik, and Robert Mason** *Date:* **January 14, 2010**

1. The worst case I-5 widening scenarios are understood and accounted for.

Despite suggestions to the contrary, the potential intrusion into the CECP site by an I-5 widening is very well understood. The worst case preferred widening scenario of the alternatives that CalTrans is going forward with to the next step is one involving 8 regular lanes and 4 commuter lanes with a barrier between them (the so-called "8+4 with barrier" alignment). As explained below, Applicant has received data from CalTrans, plotted and mapped the intrusion and provides exhibits with this testimony showing this precisely.

CalTrans originally proposed four alignments for I-5 widening in the vicinity of the project site (the "8+4 with buffer", "8+4 with barrier", "10+4 with buffer" and "10+4 with barrier"). In meetings, e-mails and a phone conversation with CalTrans staff and management, CalTrans designated the 8+4 with barrier and 10+4 with buffer as the preferred alternatives. Applicant received digital file drawings of the alignments from CalTrans and plotted the westerly proposed right of way line for each alignment. Of the two preferred alignments, the "8+4 with barrier" encroaches into the NRG site the most. Applicant has confirmed via e-mail that Caltrans has the same opinion.

After conversations with CalTrans staff regarding the possible impacts to the site, CalTrans provided the Applicant with cross sections of the proposed "8+4 with barrier" alignment. Those cross sections show a reduced right of way requirement as well as a six foot high wall at the edge of the proposed shoulder within the CalTrans right of way. This is a wall CalTrans would construct if they completed all environmental evaluation, decided to go forward with this alignment and acquired land use rights from Applicant to do so. This is also the intrusion contemplated and planned for in CEC Staff's proposed Condition of Certification, Visual – 5. Applicant has prepared a plan view showing all four possible alignment right of way lines which is provided as an exhibit with this testimony. Applicant also provides the CalTrans cross sections for the "8+4 with barrier" alignment as exhibits and enlarged views of cross sections showing the beginning and ending stations of the six foot wall and reduced right of way ("Landscape Buffer Cross Sections").

2. VIS-5 ensures that the proposed I-5 widening will not undermine appropriate screening between the freeway and CECP.

There is a sufficient buffer zone within the CECP site to accommodate the worst case intrusion of an I-5 widening. A landscaped berm with a retaining wall at the same height as the CalTrans' six foot wall would ensure that adequate and same or better visual screening would be installed and maintained on the eastern side of the project. CEC Staff's proposed Condition of Certification, VIS-5 provides that assurance by requiring an approval process and planning and

design work which must be approved by the CEC Compliant Project Manager. The two conceptual cross section drawings of the berm in the Landscape Buffer Cross Sections provide good graphic illustration of how visual screening will be maintained even should CalTrans pursue the worst case intrusion option. These drawings show how the buffer area with rows of both trees and understory shrubs will provide equivalent and continuous screening.

The plan view and the Landscape Buffer Cross Sections clearly demonstrate that adequate space is available and easy engineering designs provide satisfactory landscape screening. VIS-5 is the condition that will ensure this occurs, should CalTrans actually pursue a widening of I-5 that intrudes in the project site.

3. Newest visual simulations by City are inaccurate and misleading as is the old simulation still being circulated in the community by the City.

More than a year ago the City of Carlsbad commissioned and exhibited a supposed simulation of the project that was grossly inaccurate. In its opening testimony, the City of Carlsbad has repeated this behavior. The newest set of simulations by the City are misleading and misrepresent the CECP because, although new landscaping is shown in the widened I-5 median area, the landscape buffer at the CECP site is omitted. Worse, exhibits 421 and 423 are incorrectly referred to as "Photo Simulations" because the images do not employ photographic views, but instead rely on schematic renderings of a solid model that is neither realistic or accurate. So many other inaccuracies and distortions exist in these simulations that they should not even be considered simulations. They should not be relied upon or even used to perceive or judge the visual character of the project.

Various aspects of the newest visual rendering presented by the City are inaccurate. The view locations presented in KOP 4 (Exhibit 421) and KOP 6 (Exhibit 422) do not match the KOP 4 and 6 viewpoint locations presented in the FSA visual simulations. Exhibit 423 seems to portray a view from an unspecified location; however, the image fails to show either the landscape buffer or existing vegetation including existing mature trees at the CECP site. Exhibits 421, 422, 423, 424 & 430 do not portray the I-5 widening or the CECP correctly because the location and height of the new Caltrans wall and grading along the west side of the widened I-5 right-of-way are not consistent with the information contained in Caltrans drawings (refer to Discussion #1 and Exhibits referenced therein). The heights of existing trees near the north end of the CECP site are also shown incorrectly. In addition, although heights appear reasonable, the diameters of the existing EPS stack and the new CECP transmission poles are inaccurate. Finally, the validity of the computer generated rendering by the City is unsupported because important technical information such as sources for the engineering design data or methodology used to produce the computer generated image is lacking.

In addition, because it shows a hypothetical animated view sequence from hundreds of feet above real world eye level, Exhibit 431 does not represent the public's visual experience and is therefore misleading.

Finally, the newest visual rendering exhibits by the City are not appropriate for visual impact assessment purposes as required under CEQA because they fail to portray current existing visual conditions. Because the images omit any existing or "before" views, they do not provide an

objective, technically valid tool for evaluating visual change based on comparison of existing and future viewshed conditions.

The old photo simulation that is still being circulated in the community by the City shows an inaccurate "before" and "after" view that misrepresents the CECP with the I-5 widening (see City of Carlsbad's Correspondence regarding Visual Impacts and Site Constraints Existing Southwest view and simulation (10/08/2008)). The image incorrectly portrays the design, location and scale of the CECP. Furthermore the simulation is misleading because both the Vis-5 landscape buffer at the CECP site and replacement landscaping or revegetation at the eastern bank of the lagoon are omitted. Because the actual photo location is unknown, this image may not portray a representative public view. Finally, the validity of the photo simulation by the City is unsupported because important technical information such as sources for the engineering design data or methodology used to produce the photo-based image as well as documentation of the viewpoint location and camera type and lens specifications used to shoot the photograph are lacking.

The renderings are grossly inaccurate and should not be used or considered in evaluating what CECP will look like.

4. The visual screening of CECP, with or without I-5 widening, will ensure satisfactory views with less than significant adverse impacts.

Computer-generated visual simulations that accurately shows the appearance of the CECP without and with the I-5 widening are provided as exhibits with this rebuttal testimony. The before and after images correctly portray the appearance of the CECP from a known public vantage point, along Adams Street near Hoover Street, looking southwest (see Existing View- Adams Street south of Hoover Street). The photo was shot using a digital single lens reflex (SLR) camera with a lens that captures a "normal" view angle of 40 degrees. Global positioning system (GPS) technology and aerial photo basemap recording was employed to document the photo viewpoint location. The computer modeling and rendering procedures and techniques used to produce the simulation image are outlined briefly further below. These accurate simulations show that CECP is substantially screened with or without I-5 widening and that there will be no significant visual impacts associated with this project because of possible future I-5 widening.

Existing topographic and site data provided the basis for developing an initial digital site model. CECP engineers provided site plans and digital data for the proposed facility and existing structure removal. These were used to create a three dimensional digital model of the proposed facility. The placement and scale of the landscape buffer shown in two of the simulations are based on engineering design data discussed under #1 and 2 above. Viewer location was input from digital topographic data and scaled aerial photos, using 5 feet as the assumed eye level. A computer "wire frame" perspective plot was then overlaid on the photograph to verify scale and viewpoint location. The digital visual simulation images were produced based on computer renderings of the 3-D model combined with the digital photo.

The simulation of the CECP (see Visual Simulation of CECP with landscaping at approximately 5 years) demonstrates that from this location on Adams Street, portions of the CECP including the new stacks, will appear in close proximity to and within the visual context of the larger

existing facility. The CECP will not obstruct views of the ocean that are currently available. The simulation also portrays new landscape screening according to Condition of Certification Vis-2. A comparison of the existing view and this simulation indicates that the CECP will represent an incremental visual change that will not substantially alter the existing composition or character of the view and therefore the effect will be less than significant. Simulations of the CECP and the I-5 widening show buffer landscaping respectively at 5 and 10 years of maturity (see Visual Simulation of CECP and I-5 Widening with landscaping at approximately 5 years and Visual Simulation of CECP and I-5 Widening with landscaping at approximately 10 years). These simulation images demonstrate that within 5 years, the buffer landscaping will substantially screen portions of the HRSG and lower stacks. Within 10 years the buffer trees will provide additional screening of the CECP that will meet or exceed the current level screening provided by the existing landscaped berm. Overall these simulations demonstrate that with or without the I-5 widening, landscaping on the CECP site will provide a substantial level of screening. Therefore with respect to existing views, impacts will be less than significant.

Using the City's Exhibit 422 as a base image, conceptual simulations are provided to correctly show the west side of the Caltrans I-5 roadway widening and the landscape screening buffer specified under Vis- 5 Condition of Certification (see Conceptual Simulation with Landscape Buffer at approximately 5 years and Conceptual Simulation with Landscape Buffer at approximately 10 years). Landscaping including trees and shrubs at 5 and 10 years of maturity is portrayed. The placement and scale of the landscape buffer is based on engineering design data identified under discussions #1 and 2 above.

These images demonstrate that within 5 years the new buffer zone landscaping will substantially screen views of the CECP as seen from a widened southbound I-5. In addition within 10 years views of the this landscaping will essentially screen all but the top of one CECP stack.

5. The visual impacts analysis from all KOPs is technically sound and accurate and demonstrates no significant adverse impacts.

The City of Carlsbad attacks the adequacy and the accuracy of the visual impacts analysis presented in the FSA. This attack is not founded upon any professional or scientific criteria. Instead, it is the case that the FSA presents a systematic, defensible evaluation of potential visual impacts. The analysis employs professionally accepted methods and conforms with CEQA requirements for visual impact assessment. The analysis provides thorough documentation of the project's visual setting and evaluates potential visual impacts and conformance with visual resources LORS. The analysis also includes feasible aesthetic mitigation measures (Conditions of Certification) designed to reduce potential project visibility. Its conclusion regarding no significant visual impacts is supported by accurate and realistic computer-generated simulations that portray before and after visual conditions as seen from a set of key public vantage points or KOPs.

6. The potential cumulative impacts associated with CECP have been adequately evaluated by CEC staff.

The City of Carlsbad also attacks the adequacy of the cumulative impacts analysis contained within the FSA. This attack is not deserved as the cumulative impacts analysis in the FSA is

accurate and complete and was conducted using sound scientific and professional criteria. In its discussion of Visual Resources, the FSA considers the cumulative impacts that would result as a combination of the CECP, the Carlsbad Seawater Desalination Project ("CSDP"), the decommissioning of Units 4 and 5, the Coastal Rail Trail, North Coast Interstate 5 HOV/Managed Lanes Project, an undeveloped parcel located directly east of I-5 identified by the City, the Sewer Interceptor and Lift Station Projects, and the LOSSAN double-tracking project. (FSA at 4.12-24—30). Here, the FSA included analysis of all of the future projects the City claims should be analyzed. The analysis systematically employs professionally accepted methods and correctly concludes that cumulative visual impacts would be less than significant.

7. Point of views "KOP-10" and KOP-11 do not demonstrate any direct or cumulative significant adverse impacts.

The City of Carlsbad contends that two close range simulations, (referred to as KOP-10 and KOP-11 despite the fact that they are not actually "Key Observation Points") show that CECP could have significant direct and/or cumulative impacts. In attempting to demonstrate this, the City of Carlsbad instead demonstrates a lack of understanding of what a Key Observation Point actually is and also fails to employ any scientifically valid approach to assessing visual impacts. The points of view in question are not accessible to the public. The simulations also do not show the screening required by CEC Staff's proposed Condition of Certification, Vis-2.

KOP 10, a typical close range view from a location on the existing EPS site west of the railroad tracks, is currently inaccessible to the public. The simulation demonstrates that views of the CECP from this location will be largely screened by existing trees. As noted in the FSA, additional landscape screening under the Vis 2 Condition of Certification will further screen views of the CECP from this area. Therefore, there would not be a substantial visual effect.

KOP 11, a close range view from along the rail corridor, just south of the Agua Hedionda Lagoon Bridge, is another view that is inaccessible to the public. The simulation demonstrates that existing mature trees and shrubs as well as the proposed berm will screen lower elements of the of the CECP. This vegetation will also partially screen taller elements such as stacks and HRSGs. Additional landscape screening per the Vis 2 Condition of Certification will further screen these elements. Given the level of screening, the visual effect will not be substantial.

8. Fire safety design requirements will not prevent any visual screening requirements.

The City of Carlsbad also attempts to demonstrate that fire safety design requirements will eliminate required visual screening. This effort is mostly founded upon its effort to establish unprecedented and unsupported access requirements. This issue is addressed in the rebuttal testimony on Fire Safety. It is the case, however, that CECP, when it is built in accordance with CEC Staff's proposed Conditions for Certification will be properly and adequately screened.

EXHBIIT 151

REBUTTAL TESTIMONY IN SUPPORT OF SOIL AND WATER RESOURCES

Applicant's Rebuttal Testimony
for
Water Resources

Applicant's Witness: **John Steinbeck** *Date:* **January 14, 2010**

1. The Carlsbad Energy Center Project ("CECP") reduces once-through cooling flows at Encina Power Station ("EPS").

The City contends that the benefit of reducing the use of ocean water for EPS as it relates to the CECP is overstated and that the CECP's use of 4 mgd of ocean water for desalination purposes negates any benefit realized by shutting down EPS Units #1-3 (Garuba, p.5), which are both inaccurate. The CECP will replace the generation from Units 1–3 at the EGS thereby eliminating the 225 million gallons per day ("mgd") of seawater intake flow from the Agua Hedionda Lagoon required for once-through cooling of Units 1–3. The elimination of the permitted intake flow of 225 mgd for Units 1–3 exceeds the level of reduction that would be required under the Draft Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling issued by the State of California Water Resources Control Board dated November 23, 2009 ("Draft Policy"), as the new units (Units 6 and 7) will not require the use of any additional seawater beyond what is already being used by Units 4 and 5. The Track 1 compliance option in the Draft Policy requires reducing cooling water flow by 93% from the design flow capacity for each unit. The retirement of Units 1–3 and replacement with the two new CECP units (Units 6 and 7) will be in compliance with the Draft Policy.

Furthermore, the CECP will utilize existing plant discharge water (not new intake flow from Agua Hedionda Lagoon), directing up to 4 mgd of the plant's normal discharge (whether Units 4 and 5 are producing energy on a given day or not) to the ocean water purification system to make the necessary industrial water to support the CECP.

2. The once-through cooling system at the EGS is not being shutdown pending law or regulations.

To add further to the points raised by the City regarding the shutdown of once through cooling at EPS, the Draft Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling issued by the State of California Water Resources Control Board dated November 23, 2009 ("Draft Policy") requires reductions in the use of seawater for once-through cooling in the State of California up to 93 percent. The Draft Policy does not call for the elimination of the intake of seawater at coastal power facilities. CECP will exceed Draft Policy requirements for the reduction of the use of seawater. Further, CECP is consistent with both the letter and spirit of the Draft Policy by not requiring the use of any additional seawater beyond what is already being used by Units 4 and 5. Any seawater required for the CECP system will be drawn from the existing EPS outfall system, which will continue to be used by Units 4 and 5. The 4.3 million gallons per day proposed for use by the CECP for feedwater and dilution purposes represents a

98 percent reduction in water use, far in exceedance of the levels of reduction required by the Draft Policy.

EXHBIIT 152

REBUTTAL TESTIMONY IN SUPPORT OF WORKER SAFETY AND FIRE PROTECTION

Applicant's Rebuttal Testimony
for
Worker Safety and Fire Protection

Applicant's Witnesses: **Frank Collins and Ed Holden** *Date:* **January 14,2010**

1. **The City's testimony does not appear to have considered the following in evaluating the nature of the threat of potential fire emergencies at CECP:**

   - The approximately 10-acre power block to be located at grade elevation inside the bermed area is primarily non-combustible construction with appropriate separation between the various pieces of equipment. The majority of the buildings/structures will be steel and concrete. Other structures will be of type IIB construction or better with a few trailers for special water treatment type processes. This is an important safety feature which would localize the spread of any fire and help limit the size of a fire
   - The fuel packets are discreet with the exception of the natural gas piping which will be discussed below. The major hazard other than the natural gas are the four lube oil systems which are provided with fixed suppression system, separated and have other safety features to prevent and limit the amount of potential spilled oil which can burn, and the four main transformers which have specially designed containment to limit fire size with two-hour fire walls. These features limit the potential for a fire and will suppress a fire associated with the lube oil systems or limit the size of a transformer oil fire.
   - The natural gas piping is provided with many safety features which would limit the amount of gas which would be released in the unlikely event that an accident. In the worst case scenario, the gas line can be remotely isolated at the transmission line. Fixed fire suppression is not provided along the gas line because it is safer to let a gas fire burn until the system is isolated.
   - The remaining combustible materials such as cable, grease, and lubricating oil in pumps and valves, are insignificant with respect to fire department response to the fire retardant nature of the materials or the limited quantities
   - These safety features along with other design feature such as the seismic design of the structures and equipment drastically reduce the likelihood of a fire and limit its size.

2. **The City's proposed 50-foot emergency road access requirement unjustifiably exceeds most fire code standards.**

   - Most fire safety codes, such as the International Fire Code, cite 20 feet as acceptable road width for this type of facility. The proposed design calls for a 28 foot access width which provides more than adequate room for fire apparatus deployment or two way traffic to pass by a parked vehicle.

- Modern Combined Cycle plants normally have limited on site personnel and therefore vehicles in the area are very limited.
- The fuel packs are limited in size and a large stand-off distance from a fire is not needed.
- The power block grade elevation inside the bermed area is approximately 10 acres so access to the power block grade elevation inside the bermed area allows fire trucks in the unlikely case of a fire to access the area from a distance away from the fire. The power block grade elevation inside the bermed area has a loop road with a cross-over in the middle which would allow the fire department to attack a fire from multiple directions.
- Based on the plant design, aerial fire fighting equipment is not required to fight a fire at a combined cycle plant.
- Hydrants and hose lengths will meet fire code requirements for access to areas not directly accessible by fire trucks along the perimeter of the bermed area.

3. **The City's proposed 25 foot access road requirement above the rim of the bermed area is unnecessary .**

- The 25 foot access road above the rim of the power block grade elevation inside the bermed area is not needed in the unlikely event a fire occurs at the combined cycle plant area. A fire would be limited in size so access to the power block grade elevation inside the bermed area would always be available.
- To the extent possible the road will be maintained above the power block grade elevation inside the bermed area.

4. **The City incorrectly states that the FSA required a 30 foot emergency access roadway to account for the confined nature of the space.**

- As a point of clarification, the FSA Worker Safety and Fire Protection section entitled "Operations" (p. 4.14-12) does not classify the CECP site as a confined space.
- The specific requirement for the looped-road around the power block grade elevation is included in Condition of Certification (CoC) Worker Safety-6 (FSA p. 4.14-21) which states that "the below-grade site fire lanes, access points and ramps (with no more than a 10% grade) are constructed per the dimensions shown in Revised Figure 2.2.1." The present design as shown on Revised Figure 2.2.1 of the Project Enhancements and Refinements (PEAR) includes r a 28-foot wide looped road around the combined cycle plant which is more than adequate based on the fire hazards and fire safety feature of the facilities. The reference on p. 4.14-12 of the FSA to "at least 30 feet wide" refers to a conversation with the Applicant during a site visit by CEC staff (Alvin Greenberg) at which time, based on the use of a hand-held engineer scale in the field, the width of the loop road shown on Revised Figure 2.2.1 was approximately 30 feet. It is the Applicant's position that the width of the loop road requirement in CoC Worker Safety-6 is

pursuant to Revised Figure 2.2.1 of the PEAR. The width of the loop road on Revised Figure 2.2.1, when measured in AutoCAD, is a minimum of 28 feet depending on the specific location on Revised Figure 2.2.1.[1] As noted on FSA p. 4.14-12 and in the Verification for CoC Worker Safety-6, any request in change by the project owner to the width of the loop road will be submitted to the CPM for review and approval and to the CFD for review and comment.

5. **The City's proposal for a looped fire protection water system connected to the Carlsbad Municipal Water District is unnecessary.**

- The CECP facility is designed to have its own dedicated fire water storage tank and two 100% capacity fire pumps. This system will be designed in accordance with NFPA 850, to supply the largest fire suppression system and at least 500 gpm allowance for hose streams for at least two hours. This is more than adequate for fire suppression.
- The site will have a looped fire main with hydrants spaced around the site and will be designed to operate at least 100 psig.
- The design will include an isolated connection the Municipal supply as a back up to the Site System.
- The existing site fire system at the Encina Power Station, which is separate from the fire system for CECP, will also be available.

6. **The City's concerns regarding emergency response times lack merit.**

- The extended time for firefighting purposes is acceptable. After construction there will be a limited number of personnel in the CECP area. The fire protections systems are for property loss reduction and not life safety.
- For medical emergency response, the proposed facility will not affect the fire response time which will be the same as for the existing facilities.

7. **The City raises concerns about access to the site. The City indicated that the only emergency access lane to the project will also have the daily traffic of the plant. The City also indicated that the location of the overhead electrical lines and plume velocities might affect the fire department's ability to conduct an aerial approach and use of ladder trucks.**

- The new facilities will not impact the response times to the plant. The same access is required for the existing plant and other occupancies in the area.

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[1] For reference, the Fire Risk and Emergency Response Assessment (Patch Services, 2008), and the Carlsbad Energy Center Project Supplemental Fire Risk Assessment (CH2M HILL and Shaw Stone and Webster, 2009) are provided as Exhibits. These documents were previously docketed. In addition, a Fire Access figure that shows the primary and secondary fire access roads to CECP is included as Exhibit to this testimony.

- See the Fire Access figure that shows the primary and secondary fire access roads to CECP that is included as an exhibit to this testimony. As shown, the primary fire access road to CECP is through the main gate at the Encina Power Station, and the secondary fire access road to CECP is off of Cannon Road via Avenida Encinas. As shown on this exhibit, there are two ramps from the perimeter of the bermed area into the graded power block elevation.
- There will be sufficient vertical clearance and access under the overhead power lines for fire apparatus.
- We are not sure what the CFD is referring to with respect to plume velocities. If they are referring to fire plume velocities, except for a natural gas pipe rupture fire which can be isolated remotely, the other fire fuel sources are contained such that plume velocities are not an issue with respect to access.
- The exhibit entitled "Carlsbad Energy Center Project Supplemental Fire Risk Assessment" (CH2M HILL and Shaw Stone and Webster, 2009), provides a quantifiable risk based analysis of the various scenarios and the results on the scenarios related to the potential for fire or explosions at CECP. Based on the design of CECP, which meets all applicable fire code requirements, the risk was determine to be extremely low, and that CECP does not result in the risk of a fire spreading to offsite areas.

8. The City's alleged concerns regarding hazardous materials releases and/or the deployment of firefighters into the bermed area lack merit.

- NRG contracts with a local emergency response contractor as a "first responder", so emergency response will occur whether the City is able to respond or not.
- In addition, an Exhibit entitled, "Fire Risk and Emergency Response Assessment" (Patch Services, 2008), evaluates the fire control system that are included in CECP and the applicable fire code requirements, and provides an inventory of the hazardous materials that will be used at CECP. This assessment notes that previously, the largest volume of material that posed a risk was the fuel oil stored at the EPS tank farm. The EPS tank farms date back to when EPS used fuel oil, years ago, EPS was converted to natural gas-fired, and EPS stored a smaller volume of oil as an emergency backup in the event of a curtailment of natural gas. Tanks, 5, 6 and 7, the location of CECP, have been out of service for a number of years, and in January 2009, the California Independent System Operator (CAISO) determined that EPS no longer was required to store fuel oil as a potential backup to natural gas. With the elimination of fuel oil, the single largest volume of material that posed a fire risk at EPS is being eliminated.
- Also as noted in the exhibit, the type and volume of hazardous materials required to support the ongoing operations of EPS Units 1 -5, includes more types and larger volumes of hazardous materials then what is required for CECP. With CECP resulting in the retirement of Units 1 – 3 at EPS, the combined volume of hazardous materials used for Units 4 and 5 at EPS and for CECP, is significantly less then what has historically been used at EPS. In addition, this evaluates the fire control systems that are included in CECP and the applicable fire code

requirements, and provides an inventory of the hazardous materials that will be used at CECP.

- The only hazardous material which could restrict access into the power block grade elevation inside the bermed area would be the highly unlikely event of catastrophic failure of a 19% aqueous ammonia storage tanks. The two tanks are provided with individual containments which would limit the spill area and contain the liquid ammonia. The amount of gaseous ammonia present would be based on several factors including wind direction and wind speed and ambient temperature. According to the Offsite Consequence Analysis referenced in the Application for Certification, Section 5.5, the worst-case accident is not expected to result in an offsite concentration greater than the CEC significance value and therefore not pose a significant risk to the public.
- In addition, NRG contracts with a local emergency response contractor as a "first responder", so emergency response will occur whether the City is able to respond or not.

9. **The City's concern that the volume of construction activity from the CECP and other projects in the vicinity will increase the likelihood of an emergency and limit site access borders on alarmist.**

- There is a small increase in the likelihood of needing emergency (medical) on site during construction, however, this is true of any construction project anywhere in the City.
- First-aid trained personnel will on site during construction to provide first response to limit the delay in assistance.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
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APPLICATION FOR CERTIFICATION FOR THE CARLSBAD ENERGY CENTER PROJECT	**Docket No. 07-AFC-6 PROOF OF SERVICE (Revised 12/30/2009)**

Carlsbad Energy Center LLC's RE APPLICANT'S REBUTTAL TESTIMONY

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DECLARATION OF SERVICE

I, Judith Warmuth, declare that on January 14, 2010, I deposited copies of the aforementioned document in the United States mail at 500 Capitol Mall, Suite 1600, Sacramento, California 95814, with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, Title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

Judith Warmuth