HAYWARD AREA RECREATION AND PARK DISTRICT

1099 'E' Street, Hayward, California 94541-5299 • Telephone (510) 881-6700 FAX (510) 888-5758

California Energy Commission
DOCKETED
01-AFC-7C
TN # 68991
DEC. 31 2012

December 28, 2012

California Energy Commission
Dockets Unit, MS-4
Docket No. 01-AFC-7C
1516 Ninth St.
Sacramento, CA 95814-5512

RE: Docket Number 01-AFC-7C

To Whom It May Concern:

The Hayward Area Recreation and Park District (HARD) has received a copy of Amendment No. 4 which has been submitted by the Russell City Energy Company (RCEC). The RCEC requests among other things the deletion of the VIS-9 requirements. HARD takes issue with this request and submits that there are still unanswered issues with respect to the contradiction of lighting requirements from the FAA and the mitigation measures required by the current lighting plan. Furthermore, HARD has concerns with the impacts on our shoreline and habitats from revised FAA air patterns.

RCEC was repeatedly asked by the Recreation District and others to produce a final lighting plan that included all FAA mandated aviation hazard lighting. On May 31, 2012 plans were received, but as far as we could tell none included the aviation hazard lighting. The reason this is so critical to HARD is that any rerouting of air traffic into the shoreline increases the potential disruption of the resting, feeding, mating, brooding and raising of young endangered and threatened wildlife that live along the shoreline, not to mention the hazard of bird strike that may result in injury or death to pilots, crew, passengers as well as visitors and staff at our facilities.

HARD has been informed by Mr. Andy Wilson, a Board Member of the California Pilots Association (CalPilots) that the FAA has announced their findings on their Power Plant Plume research and has concluded plumes do have causal affects on aircraft flight and operations. The report, dated November 15, 2012, is attached (Attachment A).

This further confirms the FAA's continued concern and research on this matter as outlined in the 2006 FAA study entitled "Safety Risk Analysis of Aircraft Overflight of Industrial Exhaust Plumes" and referenced in the Commission's

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GENERAL MANAGER
John Gouveia

Final Decision in addition to being referenced to by Calpine (RCEC), CEC Staff and Commissioners in the Final Decision. HARD understands that it is CalPilots' opinion that by doing so all parties were in agreement that further mitigations would be required and it is CalPilots' opinion that at the very least Trans-10 (Transportation Aviation) and VIS-9 will have to be amended by CEC Staff. The required FAA lighting may also have to be amended on FAA 7460. All will in some way affect the Hayward Airport, Oakland International Airport and the HARD Hayward Shoreline Interpretive Center and associated shoreline trail path enjoyment by all of our visitors.

HARD would request a copy of Calpine's (RCEC) comments to the FAA on this matter and the CEC's review of the new plume analysis and and how this will affect the current mitigations of flight path requirements and how these changes that will affect HARD be mitigated in the future.

Further, the FAA in response to former Congressman Pete Stark's inquiry (Attachment B), posted in CEC RCEC Documents, as to how the FAA would manage and control airspace above the area of the proposed RCEC plumes responded they would not be able to comment until the plume study was complete. That study appears to now be completed.

Finally, Amendment No. 4 does not provide the entire history of the original energy center approval. It is true that the original location of the energy blocked the view from the HARD Interpretive Center deck toward Mount Diablo. The identified mitigation measures in VIS-9 were only a small portion of the mitigation of the visual impacts. Calpine was also going to donate five million dollars to HARD as additional mitigation. Mysteriously, from the approval of the energy plant in 2002, until Calpine requested the plant relocation, HARD was left with just the VIS-9 requirement. The cost to Calpine for VIS-9 is estimated to be $77,500 which no way fully mitigates the impacts of the new power plant location.

In fact, since the power plant has been relocated the visual impacts on HARD properties have increased significantly. HARD properties and the Bay Trail begin adjacent to the Highway 92 and move northward. The Interpretive Center is also located at the southern end. The view shed from the original plant location would have had less of an impact than the 180 degrees and total impact from all HARD shoreline properties and Bay Trail that the current power plant location has. The attached photos (Attachment C), taken from the trail entrance and decking of the Interpretive Center, reduces the actual size of the RCEC but will give you an idea of what is now the focal point in the view from the Interpretive Center and

adjacent pathway. Unfortunately, when seen in person, the Plant is much larger and the negative impact much greater.

In 2010 and 2011, HARD attempted to negotiate with Calpine to mitigate the impacts of the energy center on the Shoreline Park and its visitors. HARD proposed an agreement (see Attachment D, letter dated November 3, 2010), that would have better mitigated the impacts, but was not accepted by the RCEC. Now, the RCEC wants VIS -9 deleted. How will the visual impacts on HARD properties from the energy center be mitigated? HARD would also request that the CEC require the RCEC to complete Environmental Impact Reports (EIR) on all of the FAA requirements as they impact the Bay Trail and shoreline habitats and insure the implementation of the mitigation measures. The EIR should at a minimum look at lighting, exhaust plume and air traffic relocation as they all impact the HARD Shoreline Park and our habitats.

These matters are of great concern to HARD and are the reason why our Board of Directors have chosen not to enter into an agreement for the VIS-9 requirements and have made it quite clear to staff that they will not do so until these questions are answered. We ask that the CEC *deny* the request to delete this requirement and request that the CEC direct RCEC to return to the table and work with HARD to amend VIS-9 and other requirements to address the above issues so that a satisfactory mitigation plan may be adopted by the CEC.

Thank you for reviewing this information and please contact me with any questions or additional needed information.

Sincerely,

John Gouveia
General Manager

CC: Board of Directors

White Paper

Safety Concerns of Industrial Exhaust Plumes

Prepare by:

Federal Aviation Administration

Airport Obstructions Standard Committee Working Group

November 15, 2012

Background:

In 2008, a safety concern was raised to Federal Aviation Administration (FAA) that in some instances exhaust plumes were causing disruption to flights. In addition, California Energy Commission and other organizations were requesting guidance from the FAA on what is the appropriate proximity power plants can be constructed to an airport. Currently, the only FAA regulations are on the physical restrictions on the height of the exhaust stack. There are no FAA regulations protecting for plumes and other emissions from exhaust stacks.

In September 2008, the FAA's Airport Obstruction Standard Committee (AOSC) was tasked to study the impact exhaust plumes may have on flight safety. In 2009, a task was added to an FAA support contract that evaluated the following:

- How much turbulence is created by the Exhaust Plumes?
- Is this turbulence great enough to cause loss of pilot control?
    - If so, what size aircraft are impacted?
- Is there a lack of oxygen causing loss of engine or danger to pilot/passengers?
- Are there harmful health effects to the pilot or passengers in flying through the plume?

In fall 2010, the initial Plume Report was completed. After careful review, the AOSC determined that the information in the initial Plume Report needed to be further verified and validated.

Status:

In spring 2011, FAA's Federally Funded Research & Development Center operated by the MITRE Corp was tasked to verify and validate the initial study with an agreed upon completion in fall 2012

MITRE completed their work in September 2012 and delivered a complete study and validated full Plume Hazard model. The study indicates exhaust plumes can create hazards for aircraft in a limited area above the stack in terms of turbulence caused by upward motion of the plume and reduced oxygen content inside the plume. The reduced oxygen is not a danger to pilots, but could cause flame out of helicopter engines if hovering over the plume. It also indicated that weather conditions are an important factor

Attachment A

in the size of the risk area. The conditions which create the largest risk area are calm winds, low temperatures, and neutral or unstable stratification of the atmosphere. The reverse is also true, windy conditions (greater than eight (8) knots) and warmer temperatures, the risk area is minimized.

Next Steps:

The FAA is eager to engage with industry, prior to issuing any guidance and/or policy associated with exhaust plumes. The AOSC will host an invitation only meeting to national organizations the FAA believes represent the main aviation interest associated with plumes. In this meeting, MITRE will outline their study, the results, and the Plume Hazard model. Following the MITRE presentation, the AOSC will facilitate a discussion with the organizations to ensure their concerns are fully understood.

The meeting time and location is still to be determined, but we expect it to be in mid-December 2012 or January 2013.

* * * * *

Prepared by:
Federal Aviation Administration
Airport Obstruction Standards Committee Working Group
Contact: John Speckin
Office: 816-329-3050
Email: john.speckin@faa.gov

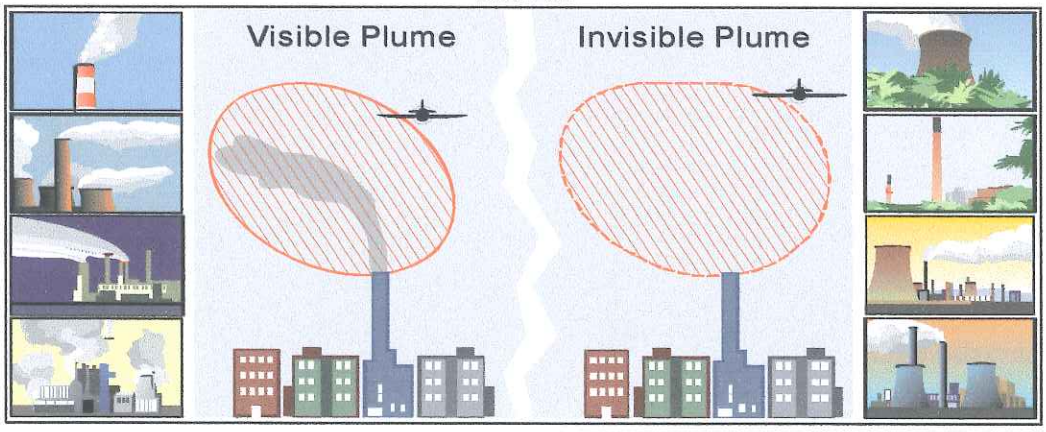
Attachment A

7-5-5 Avoid Flight in the Vicinity of Thermal Plumes (Smoke Stacks and Cooling Towers)

a. Flight Hazards Exist Around Thermal Plumes. Thermal plumes are defined as visible or invisible emissions from thermal and smoke stacks of power plants, industrial production facilities, or other industrial systems that release large amounts of vertically directed unstable gases. It is presumed that high velocity and/or high temperature exhaust plumes may cause significant air disturbances such as turbulence and vertical shear. Other identified potential hazards include but are not necessarily limited to reduced visibility, oxygen depletion, engine particulate contamination, exposure to gaseous oxides and/or icing. Results of encountering a plume may include airframe damage, aircraft upset, and/or possible adverse effects of high levels of gaseous oxides, low levels of oxygen, engine particulate contamination, icing and restricted visibility. These hazards are most critical during low altitude flight, especially during takeoff and landing.

b. When able, a pilot should fly upwind of possible thermal plumes. When a plume is visible via smoke or a condensation cloud, remain clear and realize a plume may have both visible and invisible characteristics. Exhaust stacks without visible plumes may still be in full operation and airspace in the vicinity should be treated with caution. As with mountain wave turbulence or clear air turbulence an invisible plume may be encountered unexpectedly. Cooling towers, power plant stacks, exhaust fans, and other similar structures are depicted in FIGURE 7-5-5. Whether plumes are visible or invisible, the total extent of their unstable air is difficult to ascertain. FAA studies are underway to further characterize the effects of thermal plumes and exhaust effluents. Until the results of these studies are known and possible changes to rules and policy are identified and/or published, pilots are encouraged to exercise caution when flying in the vicinity of thermal plumes. Pilots are also encouraged to reference the Airport/ Facility Directory where amplifying notes may caution pilots of an exhaust emitting structure's existence and location.

FIG 7-5-5
Plumes



Attachment A

U.S. Department of Transportation
Federal Aviation Administration

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

DEC 23 2009

The Honorable Fortney Pete Stark
House of Representatives
Washington, DC 20515

Dear Congressman Stark:

Thank you for your September 22 letter about the proposed Russell City Energy Center in Hayward, California. You are concerned about the impacts of thermal plumes from the plant's cooling towers and exhaust stacks on aircraft using the Hayward Executive Airport.

The Federal Aviation Administration recently commenced a study, under the auspices of the Airport Obstructions Standards Committee, to understand thoroughly all aspects of possible thermal plume risk to aviation. The study is titled "Analysis of the Impact of Vertical Plumes and Exhaust Effluent on Aviation Safety." The study will examine in detail available scientific data, possible aeronautical effects, and potential operational impacts resulting from flight in the vicinity of thermal plumes. Based upon the results of this study, we may adjust policies to ensure aviation safety. This study is scheduled for completion no later than December 2010 and will have the research and scientific foundation to support policy change. Please note that the 2006 FAA study titled "Safety Risk Analysis of Aircraft Overflight of Industrial Plumes" was intended to provide problem understanding and identification, rather than the basis for substantive policy change.

In the interim, we are drafting language for possible inclusion into the Aeronautical Information Manual (AIM) to describe, in general terms, the possibility of adverse effects of flying near structures releasing such plumes with a recommendation to avoid flight in close proximity of those structures. We also are considering adding an advisory note to the listing of the impacted airports in the Airport/Facility Directory.

In response to your specific questions regarding Russell City Energy Center:

1. Has the FAA thoroughly examined the potential safety risks that the Russell City Energy Center may pose for the Hayward Executive Airport?

   The FAA issued determinations regarding the Russell City Energy Center on March 26, 2007. Determinations of No Hazard were issued for two exhaust stacks and the determinations concluded no Title 14 Code of Federal Regulations part 77 objects affecting

Attachment B

navigable airspace surfaces were penetrated by the proposed structures. Part 77 does not provide for allowance beyond the physical structure height for thermal emissions. The determination did not identify aviation hazards. However, as explained above, we are conducting a detailed study to better define thermal plume effect which will provide the metrics for risk determination and potential policy change.

2. Has the FAA analyzed whether "Notice to Airmen" to avoid thermal plumes has been sufficient to avoid potential dangers at airports within a 3-5 mile radius of power plants that have come on line in the last 5 years?

   The FAA has not analyzed Notice to Airmen (NOTAM) as a means to mitigate possible thermal plume safety hazards. Our 2006 study concluded that NOTAMs may be a means to notify pilots and potentially reduce risk; however, NOTAMs are intended for temporary situations. The stacks releasing the plumes are normally permanent structures, and an alternative mitigation may be to place an advisory note in the Airport/Facility Directory listing for the Hayward airport and all other affected airports, which may be more appropriate combined with the proposed interim guidance intended for the AIM.

3. Does the FAA plan to study the effect that a "Notice to Airmen" concerning the Russell CityEnergy Center would have on the Hayward Executive Airport as well as the three larger commercial airports in the Bay Area?

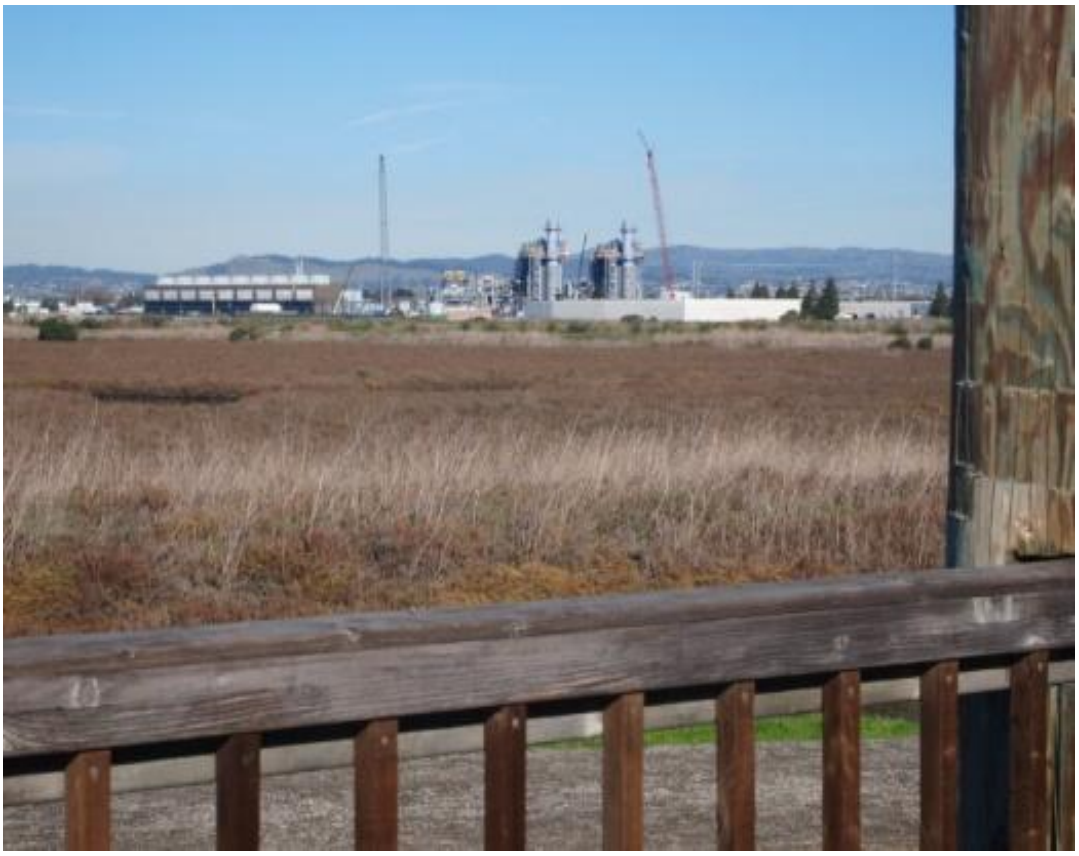
   Currently, a NOTAM has not been requested since NOTAMs are intended for temporary situations.

If I can be of further assistance, please contact me or Roderick D. Hall, Assistant Administrator for Government and Industry Affairs, at (202) 267-3277.

Sincerely,

J. Randolph Babbitt
Administrator

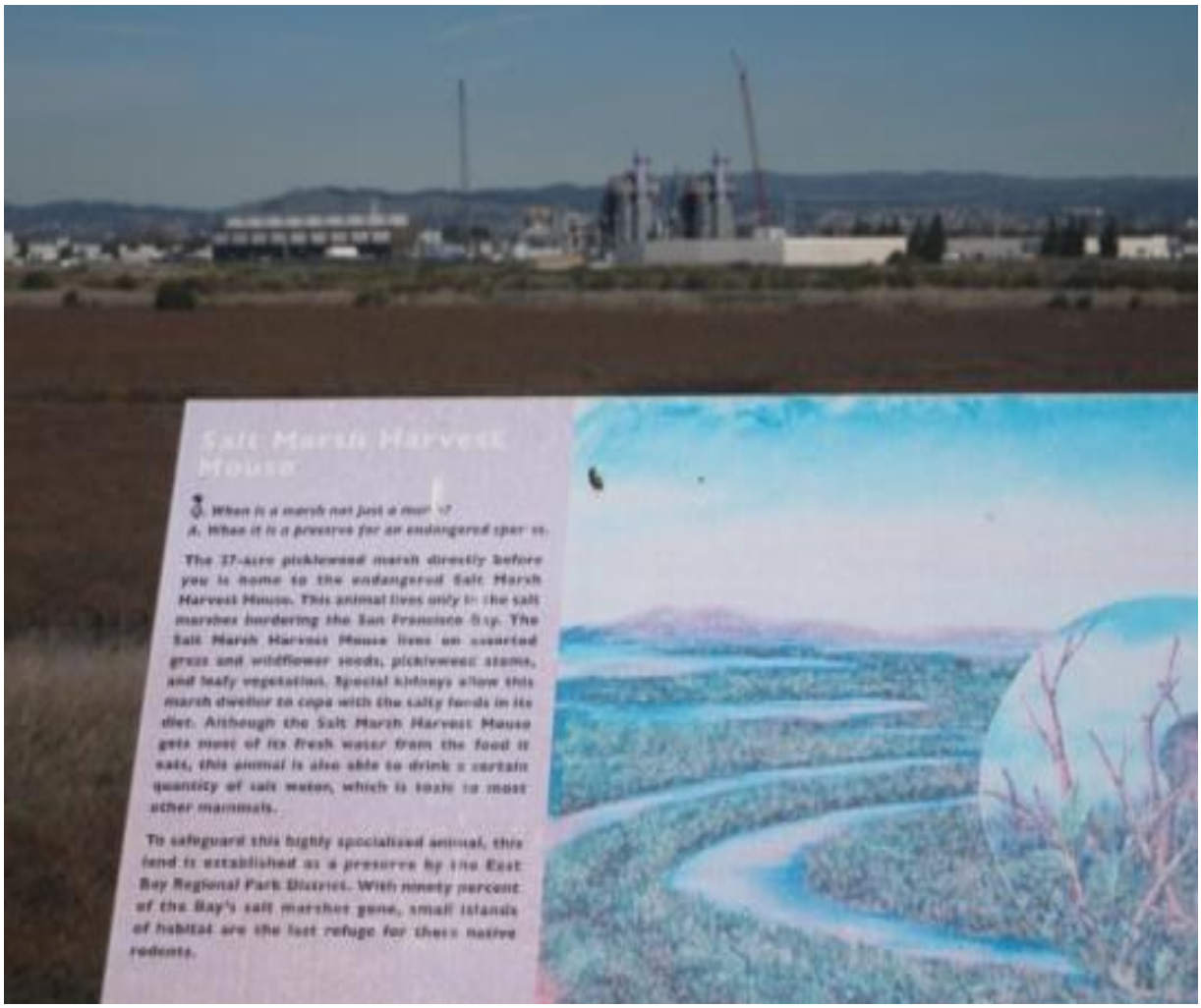
Attachment B



RCEC from Interpretive Center deck.

RCEC from path, near Interpretive Center.

Attachment C



RCEC from observation deck.

Attachment C

RCEC from ramp to Bay Trail.

RCEC from ramp going to Bay Trail.

Attachment C

HAYWARD AREA RECREATION AND PARK DISTRICT

1099 'E' Street, Hayward, California 94541-5299 • Telephone (510) 881-6700 FAX (510) 888-5758

November 3, 2010

Mr. Joe Ronan
Senior Vice President
Calpine Corporation
4160 Dublin Blvd., Ste. 100
Dublin, CA 94568

Dear Joe:

It was good to meet with you and Becca again and also to meet Gevan. I believe that things are moving positively forward and hope that we can find an agreeable solution. As we have stated, the Hayward Area Recreation and Park District (HARD) are stewards of the park and open space for the citizens of the greater Hayward area. It is important that the shoreline area remain accessible, well maintained and that it provides for educational opportunities. As you know, HARD works closely with the East Bay Regional Park District (EBRPD), especially along the shoreline. We have a collaborative relationship with EBRPD as boundary lines are shared throughout the shoreline property and our citizens should be able to enjoy each agency's parks as if they were one.

At the August 17, 2010 meeting, the following summarizes the HARD proposal.

- Trailside Improvement Contribution – This is identical to Article 1.1.3 of the agreement with EBRPD. The amount would be $300,000 with the same installment plan. The trail system along the shoreline is owned and maintained by both HARD and EBRPD. The level of service needs to be similar so visitors to the shoreline receive consistent opportunities.

- Breakwater Avenue Entrance Contribution – This is similar to Article 1.1.4 of the agreement with EBRPD in the amount of $200,000. The funds would be used at the Breakwater Avenue entrance. Public access whether at the West Winton Avenue entrance or Breakwater Avenue entrance to the shoreline trail needs to be consistent and coordinated between HARD and EBRPD.

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GENERAL MANAGER
Rita Bedoya Shue

- VIS-9 – In accordance with the requirements of the California Energy Commission, the VIS-9 condition is proposed to be fulfilled by the following:

  - Benches along Shoreline Trail-Provide $30,000 for 10 benches with replacement at 5 and 10 years (30 benches total)

  - Interpretive Display Units-Provide $7,500 to produce and build displays along trail.

  - Habitat Displays-Provide $5,000 to produce and build displays at the HARD Interpretive Center.

  - Trail Markers-Provide $24,000 for markers with replacement at 5 and 10 years (30 markers total)

  - View Scopes-Provide $6,000 for scopes with replacement at 5 and 10 years (6 scopes total)

  - Interpretive Center Staff Time-Provide $5,000 for staff time to develop the above display units and habitat displays.

This proposal totals $577,500. We look forward to meeting with you in the near future to review the proposal.

Sincerely,

Lawrence R. Lepore

Larry Lepore
Park Superintendent

LL:jw

Cc: Rita Shue, General Manager, HARD
Kerrilyn Ely, Recreation Superintendent, HARD
Gevan Reeves, Calpine Corporation

Attachment D