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Comments for Business Meeting re Carlsbad

Additional submitted attachment is included below.

Pittard, Shawn@Energy

From: rob@redwoodrob.com
Sent: Wednesday, July 29, 2015 10:45 AM
To: Energy - Public Adviser's Office
Subject: comments for business meeting re Carlsbad
Attachments: carlsbad pmpd comments Rob.pdf; CarlsbadEnergyCenterLongcore2015 (1).pdf

Hello,
I read the agenda for the business meeting tomorrow and it stated;

To avoid occasional technical problems with the Commission's telephone link, the Commission recommends that a written comment also be submitted either by facsimile or e-mail to the Public Adviser by 5 p.m. two days before the scheduled business meeting. Fax (916) 654-4493 or e-mail publicadviser@energy.ca.gov.

Please submit my attached comments to the commission for agenda item 5.
I also wish to speak at the meeting and have images displayed as I speak, Can you arrange for the last image in both of the following to be displayed during my comment?

http://docketpublic.energy.ca.gov/PublicDocuments/07-AFC-06C/TN203942_20150323T215028_Photo_Update_No_1.pdf

http://docketpublic.energy.ca.gov/PublicDocuments/07-AFC-06C/TN203943_20150323T215029_Photo_Update_No_2.pdf

Thank you
Rob Simpson

Rob Simpson Comments on the Calrsbad Energy Center PMPD

Thank you for the opportunity to comment regarding the Carlsbad Energy Center project and the PMPD. The PMPD states; “Intervenor Rob Simpson filed a Supplemental Brief5 raising various issues regarding potential impacts of the ACECP on avian species. He asserts that the exhaust stacks pose a collision risk, the exhaust plumes increase risks to birds, the spacing of the transmission lines poses a risk to larger-wingspan species, and suggests that the impacts of this gas-fired turbine facility are similar to those of the concentrating solar Ivanpah6 project. These concerns were appropriately addressed in the 2012 Decision; mitigation measures were identified and imposed and no significant environmental impacts were found.7 The comparison to the Ivanpah facility is inappropriate as Ivanpah’s avian issues are related to solar flux, a phenomena not present here. Mr. Simpson’s comments fail to identify any new significant impacts, new information not available during the preparation of the 2012 Decision or new or newly feasible mitigation measures. We abide by the environmental analysis contained in that document.”

To extrapolate from Dr. Longcore and others good works, the determination that the avian impact analysis should end at the top of the stack and ignore the plume-avian impacts insults the research and defies common sense. Attached is a letter from Dr. Longcore clarifying the extent of his research on the subject. I incorporate the contents of this letter into my comments. This is also a motion to reopen the evidentiary record and restore my full intervention rights and consider testimony on the subject. The FSA states; “The amended CECP site comprises the northeastern portion of the present EPS property, located immediately south of the Agua Hedionda middle and outer lagoons”

Stressors, which result in an increased impact, over the prior proposed project, include more and faster starts. Startling birds is in itself an undisclosed adverse impact, in this context it may also startle birds into flight and impact. It is not just the 33% more start-ups, it is that the starts are further concentrated into a 25% shorter operating day, during hours most likely associated with avian activity, from 6am till midnight. Additionally, increased plume velocity, increased temperature, increased number of smokestacks, higher pollutant emissions and an exponentially larger kill zone, in a more sensitive location than the prior planned project are all new significant impacts. The plume diameter, which represent a threat to aircraft, represents 5 times the area of the prior plan at twice the range.

Presently there is an old 400 foot stack. Then the plan was to replace it with a project including 2) 139-foot tall smoke stacks. Now the plan is to replace the last plan with a project that includes 6) 90 foot smoke stacks.

The existing stack has a very low velocity plume from the boilers. The new projects incorporate fast starting turbines which create intermittent invisible thermal plumes at incredible velocities and temperatures. The fact is that impact with the plume needs to be considered. The CEC acknowledges that the plume is a threat to aircraft but has refused to consider its impact on avian species. The invisible plume is a greater threat than the visible smoke stack. The chance of running onto a relatively small concrete tower over an exponentially larger invisible jet inferno, that may have been

a safe flight path moments ago, must be greater. It is no surprise that there are no reports of avian plume impacts from the existing facility, no study in has been conducted. The existing higher elevation, low velocity plume could exist in relative harmony with the environment. A project like the one proposed could launch bird carcasses ½ mile in the air and disperse any remains far from the facility. Here are a few excerpts from the Staff analysis;

"As explained in the Traffic & Transportation section, a vertical velocity of 4.3 m/s (plume average velocity) has been determined as the critical velocity of concern to light aircraft. For the amended gas turbines the worst-case height at which the plume average velocity drops below 4.3 m/s is calculated to be 2,200 feet, which is much higher than the 1,070 feet calculated for the approved gas turbine/HRSG design. At this 2,200 foot height the plume diameter for the amended gas turbines is calculated to be 673 feet which is much greater than the 299 foot diameter of the plume for the approved gas turbines/HRSG at 1,070 feet. Therefore, the amended gas turbine design would increase the potential risk to light aircraft from plume turbulence…*and,* The licensed CECP limits the project's start-up and shutdown cycles to 300 per year. The petitioner proposes to increase the start-up and shutdown cycle requirements to 400 per year for the amended CECP… Each GE LMS100 turbine is capable of reaching 100 percent load in ten minutes or less with ramp rates up to 50 MW per minute,

Stack Velocity ft/s (m/s) 119.05 (36.29) 13.45 (4.1)
Exhaust Temperature F (K) 781.7 (689.65)"

"Collision
It is possible that bird collisions with the amended CECP exhaust stacks and other facilities could occur. The amended CECP exhaust stacks would be approximately 90-feet tall (65-feet at grade), reducing the likelihood of stack collision as compared to the licensed project. Bird mortality is significantly lower at towers shorter than 350 feet (Karlsson 1977; Longcore et al 2008). Because the amended CECP exhaust stacks would be significantly shorter than the existing EPS exhaust stack or licensed CECP exhaust stacks, the amended CECP would pose a reduced collision risk to birds."

I am not a biologist but I am chef with common sense. I can testify that an 80 mile an hour 780 degree updraft of this magnitude will be like a giant outdoor convection oven, capable if instantly cooking to death any animal on this planet.

There is ample evidence on this record that there are new significant avian plume impacts from the amendment. Because the Commission put up a smokescreen regarding this issue in the original proceeding it did not establish some baseline for plume impacts for this amendment. There must be some threshold that an airborne invisible minefield becomes significant. The project violates the Endangered Species Act and Migratory Bird Act. It the CEC is to subsume the Coastal Commission's authority, it must also subsume the duty to initiate consultation with the USFWS.

The PMPD responded to my comment regarding Ivanpah in a continuing cat and mouse game to feign ignorance of the point of my comments, my comment was to refute CEC claims that "Evidence of significant and predictable injury or mortality

from thermal or exhaust plumes has not been reported or documented at other power plants" The PMPD states; The comparison to the Ivanpah facility is inappropriate as Ivanpah's avian issues are related to solar flux, a phenomena not present here. This fails to define how birds killed by thermal plumes are any less dead than birds killed by solar flux or any other distinction between solar flux or thermal plume. The deaths are related to the heat from the sources. Solar flux represents a type of thermal plume in this context. Albeit in that case it not exacerbated by a higher temperature, intermittent, invisible, 80 mile an hour, toxic updraft, in the middle of an endangered avian species habitat and migratory bird path. This project also has a much larger potential kill radius. The USFWS, Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis, *states;* "It appears that Ivanpah may act as a "mega-trap," attracting insects which in turn attract insect-eating birds, which are incapacitated by solar flux injury, thus attracting predators and creating an entire food chain vulnerable to injury and death. Solar flux injury, resulting from exposures to up to 800º F, was unique to the power tower facility…Finally, there are presently little data available on how solar flux affects birds and insects. Studies of the temperatures experienced by objects in the flux; of the effects of high temperatures on feather structure and function; and of the behavior of insects and birds in response to the flux and related phenomena (e.g. "light clouds") are all essential if we are to understand the scope of solar facility effects on wildlife…Ivanpah is the only facility in this study that produces solar flux, which is intense radiant energy focused by the mirror array on the power-generating tower. Objects that pass through this flux, including insects and birds, encounter extreme heat…Proposed mechanisms of solar flux-related death follow one or a combination of the following pathways: • impact trauma following direct heat damage to feathers and subsequent loss of flight ability • starvation and/or thermoregulatory dysfunction following direct heat damage to feathers • shock • soft tissue damage following whole-body exposure to high heat…In order to investigate at what temperature feathers burn/singe, we exposed feathers to different air temperatures. Each feather was exposed to a stream of helium and air for 30 seconds. The results indicate that at 400° Celsius (752° Fahrenheit) after 30 seconds the feather begins to degrade. But at 450° and 500° Celsius (842° and 932° Fahrenheit respectively) the feathers singed as soon as they made contact with the superheated air (Figure 11). Therefore, when singed birds are found, it can be inferred that the temperatures in the solar flux at the time a bird flew through it was at least 400° Celsius (752° Fahrenheit). This inference is consistent with the desired operating temperature of a power tower solar boiler (482° Celsius)…

The Commission should take administrative notice of the USFWS Ivanpah report Docket Number: 09-AFC-07C Project Title: Palen Solar Power Project - Compliance TN #: 202538 Document Title: Exh. 3107 Kagan et al 2014 Description: Avian mortality Report. It should also disclose how the impacts from this project are determined to not have similar or greater impacts, beyond having a different name for the heat source. The PMPD referenced the related Ivanpah project in another area of the PMPD."

The PMPD claims above that my "concerns were appropriately addressed in the 2012 Decision" ignores the fact that the concerns are in regard to the new project configuration and new wires planned to be located next to the wildlife sanctuary.

The FSA responded to my concerns “Pelicans exhibit behavior which is distinct from raptors. Raptors preferentially select power poles for perching and occasionally nesting. Pelicans are a pelagic bird and do not utilize power poles. No impacts of such nature have been demonstrated. Staff is unaware of pelicans posing a public health threat.” I replied to the ridiculous response in brief and even included a photo of a pelican on a power wire. The PMPD further failed to adequately respond to my reply. The fact is that the new proposed wires are closer to the Brown Pelican habitat. In flight or perched the pelicans wings can easily reach both conductors and electrocute the bird. If the Commission continues to feign ignorance of pelican behaviour and the new risks associated with the amended project they should consult a qualified biologist or at least google it. The Avian Power Line Interaction Committee (where I got the picture) states; “*Question:* Do large birds perch on electrical wires? *Answer:* Yes! Large birds, from pelicans to raptors, can perch on electrical wires, or conductors. (*Pictured: Brown Pelican-left, Red-tailed Hawk-right*)” http://www.aplic.org/FAQs.php
Or the Commission could review its own guidance document
ASSESSMENT OF AVIAN MORTALITY FROM COLLISIONS AND ELECTROCUTIONS In Support of the 2005 Environmental Performance Report and the 2005 Integrated Energy Policy Report Proceeding (Docket 04-IEP-1) S TAF F R E P O R T

The locations of dead birds found by field personnel are all recorded in the RIMS (Raptor Information Management System) Database that Southern California Edison uses to record the location and species of raptors electrocuted. These data can be displayed electronically on a USGS Quadrangle map and can, at the same time, display other electrocutions reported in the vicinity. Southern California Edison facilities have, on rare occasions, electrocuted golden eagles, bald eagles, and one brown pelican; however, it is rare when these special-status or endangered species are involved in electrocutions. The most commonly electrocuted species are nonraptors (e.g., pigeons, blackbirds, starlings, etc.). The most commonly electrocuted raptor species in the Southern California Edison service territory are great horned owls and red-tailed hawks (Pearson pers. comm. 2005)
http://www.energy.ca.gov/2005publications/CEC-700-2005-015/CEC-700-2005-015.PDF

It is understandable that occurrence is identified as “rare” since the species are endangered (which means there are not many of them left, perhaps from hitting power lines too often.)

The Commission should require all wires, including the existing ones, to be underground. This will eliminate the visual impacts and avian impacts of the wires. It may serve as mitigation for some of the visual impacts of the new project. Also, The FSA states; “The conductors in the underground section of the proposed connection to the new SDG&E 230-kV switchyard would be located in duct-bank trenches according to standard SDG&E design and construction practices. Because such underground cables are located more closely together in their encasements than when overhead, they produce (through field cancellation effects), fields of the lowest intensity possible without affecting safety, maintainability and reliability….
Since (a) electric fields are unable to penetrate the soil and other materials, and (b) the radio-frequency-related effects are produced by the electric fields, communication interference and other field effects are not encountered above underground lines and would therefore, not occur in the underground section of the proposed 230-kV transmission line.” The PMPD states; “The solution developed

under Condition of Certification **VIS-5** shall not preclude relocation or undergrounding of transmission poles or other features, if necessary to provide the stipulated visual buffer or achieve adequate longterm project screening

This information reiterates that;
1. Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
and
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; *and*
3. New information of substantial importance, which was not known and could not have been known in 2012, shows:
(A) The project will have one or more significant effects not discussed in the previous EIR;
(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR

Based on this evidence, the Commission cannot make the determinations that:
1. The 2012 Decision found that the project would conform with all applicable LORS and that, with the implementation of the Conditions of Certification, the project would not have any significant direct, indirect, or cumulative impacts to biological resources.
2. None of the factors that require a subsequent or supplemental environmental analysis set forth in the CEQA Guidelines, at section 15162(a), described in the **Introduction** section of this Decision are present regarding this topic.

The PMPD states; “As we discuss in the **Override Findings** section of this Decision, the Energy Commission and the CPUC, make complementary decisions regarding power plants, subject to different standards. No law or rule requires that the Energy Commission approve only the capacity for which the CPUC has approved contracts. The bidding for those contracts will be more competitive—to the ratepayers’ benefit—if more shovelready projects are available to compete.”

The act of making gas fired projects “more competitive” inherently make preferred resources less competitive, exacerbating the State’s efforts to move to cleaner more equitable economy. The Commission should not continue to tilt the field to the benefit of major corporate polluters. There should be some additional basis for the contention that there is some ratepayer and environmental benefit besides simply a conclusionary statement to that effect. Other projects would be further burdened to compete with this project in that they may have to actually pay the permit fees associated with their project. A burden that this project has to date evaded.

In another demonstration of the commission making preferred resources less competitive the Commission has imposed prepayment of closure expenses in solar

projects but has declined to do so in this instance. The PMPD states; “In the existing license (2012 Decision), the issue of requiring prepayment of closure expenses was referred to the Commission’s Integrated Energy Policy Report Committee for future consideration.7 Such requirements have been imposed on large solar projects in the desert.8 Unlike those facilities or other “greenfield” developments, this Applicant is reusing an existing power plant site. In addition, the project calls for significantly improving the coastal profile with the removal of the EPS. The City stated that, but for the nuances of the Coastal Act, it would have granted a height variance on the project.9 Should the site no longer be needed for power generation, its prime coastal location will make it likely that the subsequent uses can bear the costs of ACECP’s removal. Given those considerations, we decline to impose a closure funding requirement on the ACECP.” Notably, no evidence that the IEPR considered my position that prepayment of closure expenses should be paid. The Commission should require prepayment of closure expenses.

The logic relied upon, that the value of the prime coastal location is high enough to facilitate removal of the new plant must also hold true for the existing plant. All references in the PMPD that the new project facilitates the removal of the existing plant should be removed. The truth is that the existing plant will be removed because of the high value location and mandatory retirement of the facility to meet the culmination of once through cooling, regardless of this project. The new project will only delay subsequent uses of the location and so a “no project” alternative is environmentally superior.

The PMPD states; “Here, the project owner professes an intention to build all six turbines despite having contracts for only five. Other contracting opportunities may present themselves or it may operate the sixth turbine in the spot market. Providing that additional capacity from the ACECP site makes good use of existing infrastructure. No compelling reason for reducing the size of the project has been presented and we decline to do so.

The reduced capacity alternative would not eliminate the significant cumulative impact relating to the potential inability to provide sufficient visual screening following the widening of I-5. While it may allow for a relocation of and reduction in the visibility of two of the transmission-line poles of concern to Interveners Terramar Association and Power of Vision, the poles as configured for the six-turbine ACECP do not cause significant visual impacts; no further reductions are necessary. If additional capacity beyond the staff analyzed alternative of 421 MW is necessary, a new facility at another location or expansion of an existing facility would be required, with additional potential impacts.”

The reduction in transmission-line and poles is a compelling reason to reduce the size of the project. The PUC provided a “compelling reason” A further compelling reason is that the reduction would reduce visual impact of the towers and related equipment by 1/6 at least.

The PMPD states; “The width of the area available for screening along the eastern perimeter varies. Our concern is focused on a few areas, described as “pinch points.” At its worst, there may be some gaps in the screen in those areas, which will lead to momentary glimpses of the ACECP. Weighed against the benefits of the

project, including the substantial improvement in the overall viewscape, we find it appropriate to override this impact… *and* staff's current understanding suggests that adequate implementation of **VIS-5** could require changes or alterations to layouts to either the amended CECP or the I-5 Widening project, or both." The reduction in size could eliminate these "pinch points", "incorporate changes or alterations" and allow the entire project to be better screened, demonstrating another compelling reason to reduce the size of the facility. The Commission has not demonstrated what the project might look like with the smaller footprint; it should consider a visual representation of a smaller footprint prior to concluding that it would not be compelling. The reduced capacity alternative may eliminate or significantly reduce and mitigate the significant visual cumulative impact; the Commission has presented no evidence that it would not.

The PMPD states; "CECP's western perimeter transmission lines and towers would be further from I-5 and thus less prominent in comparison to the eastern perimeter transmission lines and towers of the ACECP." This is a compelling reason to stay with the approved project the wires over the highway are a significant effect. The PMPD concluded that since there are other wires the effect is not significant but cumulatively it is and can be mitigated by undergrounding the wires and/or staying with the existing project. The FSA statesFour series of highly prominent 138 kV and 230 kV single-pole transmission towers and accompanying lines are visible east of the EPS generation building and cross I-5 from west to east, contributing an additional element of industrial character to the site that is especially dominant from the interstate.

Neither of the no project alternatives—leaving the existing EPS in place or the licensed CECP—would avoid or substantially lessen the significant cumulative visual impact. The EPS would not provide the project benefits and, while the CECP would provide many of the project benefits, it would do so at the cost of a larger visual profile and uncertainty about the ultimate removal of the EPS 200-foot high enclosure and 400-foot stack." The CECP is a much smaller visual profile. It is only 2 stacks located far away from scenic Highway 1 and the lagoon habitat. The new project is planned to be hugged up against the highway merely a stone's throw away. The Commission has presented no visual representations of the new project because the developer objected to providing them in data response 77-84. No consideration has been given to the visual impact of the 6) 2000 foot plumes over the 2) 1000 foot plumes. The Commission should not make an affirmative decision without at least a representation of what the project will look like next to the road with no visual screening and visible plumes.

The FSA states; "Land uses in the immediate vicinity of the project site are dominated by intensively used, scenically-sensitive recreational destinations, including the adjacent lagoon and associated facilities, and Carlsbad State Beach. Highway I-5, an eligible State Scenic Highway and designated city scenic corridor, and Carlsbad Boulevard, a locally designated scenic corridor, bound the EPS site to the east and west respectively" The proposed visual screening, that the developer might go down to home depot and buy some box trees is laughable. There is no landscape plan, no monetary commitment, no maintenance agreement, No growth factors to try and guess how many decades it might take for the trees to grow large enough to screen the project or replacement requirement if they do not maintain the

trees. There is no irrigation plan or identification of where water might come from to irrigate. Despite the huge size of the property no space has been allocated for the trees in the first place. There is no biological opinion that tall trees in the location would not create perches for raptors to prey on endangered species in their shadow. There is also no evidence that any vegetative visual screening on a Commission approved energy facility licensed in the last 15 years has worked. One only needs to tour California energy facilities to witness that they are devoid of maintained landscaping and starkly industrial and foreboding in their appearance. The PMPD states; “Birds could nest in the eucalyptus trees along the eastern border of the site. However, given the fire threat, removal of several taller, more mature trees in this area has occurred since the licensed CECP approval in 2012. Removal of trees suitable for nesting will only continue to occur with aging and continued drought conditions. Caltrans’ future widening of Interstate-5 would also result in tree removal.

A noise reduction is also a compelling reason to reduce the size of the facility. The PMPD states; “Laura Keany provided public comment on noise and vibration during the evidentiary hearings, indicating her preference that noise be minimized, particularly during demolition and construction. Jan Berry also commented that the project size should be reduced due to noise issues. As we discuss above, we have adopted conditions of certification to minimize noise levels. There is no evidence of a correlation between the size of the project (number of turbine generators) and its noise generation.” (emphasis added) But the FSA provides evidence of the obvious correlation, It states; ”During operation of the reduced capacity alternative, annual air pollutant emissions could possibly be less if one assumes that the same 2,700 hours per turbine per year limit remains, and that the facility is run according to those hourly limits. Such assumptions would reduce impacts in the areas of Air Quality and Public Health, although these benefits are speculative given that peaker units are typically operated at levels far below their hourly limits. Noise & Vibration impacts during operation would be slightly less in certain locations depending on which two GE LMS100s were eliminated.” (emphasis added) This could certainly lead to less noise impacts in the lagoon.

The PMPD devotes almost 2 whole pages to biological resources, it states; “The topic of biological resources was not contested.” It should state that; the committee chose to limit the intervener who participated most comprehensively regarding biological resources in the original proceeding, from participating in biological resources in this proceeding, so that biological resources could not be contested.

There has therefore been virtually no consideration of the impacts from the new project on the adjacent endangered species, their habitat and associated flora. The project is so close to the habitat that it will shade it in the afternoon. There is no study of the operational noise, light, or other impacts from the project at the new location. The FSA recognized noise impacts from the 5 years of construction noise plus 2 years of demolition but punted consideration. It states;

Predicted Demolition Noise Impacts on Nearest Biological Receptors
Demo ASTs 1,2, 4 ~350 feet from Lagoon 73 (decibels)

For land uses adjacent to estuarine habitat, the HMP specifies standard best

management practices, which require attenuation measures for activities that generate noise levels greater than 60 decibels (dBA) occurring within 200 feet of important breeding habitat during the breeding season (Carlsbad 2004). The project owner has suggested that the provisions developed for the licensed CECP, and incorporated by reference into Condition of Certification **BIO-6** (Biological Resources Mitigation Implementation and Monitoring Plan), would adequately mitigate noise generated by the amended CECP.

BIO-6 The project owner shall submit two copies of the proposed BRMIMP to the CPM (for review and approval) and to CDFW and USFWS (for review and comment) and shall implement the measures identified in the approved BRMIMP. The BRMIMP shall be prepared in consultation with the Designated Biologist

First, as Dr. Longcore commented the "This (60 dB(A)) threshold does not have biological validity and is not supported by current scientific research. Second despite exceeding the nebulous threshold Bio-6 defers consideration/mitigation to a point which is beyond the opportunity for the public to participate. Third there is no study of the operational and construction noise impacts for the project in this location and mitigation that the public can consider. The Commission should not make a decision until the public has an opportunity to comment on any mitigation plan. The PMPD nods to the impacts but somehow places the onerous for mitigation on the wildlife itself. It states; "Existing operations at the EPS, traffic on Interstate 5, the NCTD rail corridor, and ongoing construction of the CSDP and Agua Hedionda Sewer Lift Station could create elevated ambient noise to which most local wildlife species have acclimated. However, excessive construction noise has the potential to disrupt the nesting, roosting, or foraging activities of sensitive wildlife, especially wildlife in the middle lagoon of Agua Hedionda, or in adjacent natural habitat that buffers the Lagoon and surrounding developments." (emphasis added) The Commission should cite some basis for the otherwise unfounded claim. The FSA also places the expectation of adaptation on the wildlife without basis. It states; "The turbines will be operating on a fully industrial site. Birds that roost in the area would be expected to have acclimated to the various noises and lights associated with plant construction and operation"

The FSA gives us some idea of the noise impacts in the lagoon albeit staffs position is more akin to a guesstimate than an actual analysis. It states; As noted above, the noise generated from the simple-cycle facility was 48 dBA at 1,750 feet, while the noise generated from the combined-cycle facility was 50 dBA at 2,300 feet. Based on this assessment, it is expected that the amended CECP would comply with all noise-related LORS."

Using Staffs guesstimate and nebulous threshold of "60 decibels (dBA) occurring within 200 feet of important breeding habitat during the breeding season" and purported distance to the lagoon being 350 feet and extrapolating from the response to staff data requests 67-84 it is clear that construction and operation noise will exceed the 60 dBA threshold in the protected habitat. The Commission would have to override the Endangered Species Act, Coastal Act and local Habitat Management Plan to approve this project as it is.

The FSA states; “FSA the Agua Hedionda Lagoon supports important populations of special-status species such as the southwestern pond turtle, white-faced ibis, and western snowy plover, and provides foraging habitat for American peregrine falcon and osprey. The estuarine and marsh habitat surrounding the lagoon (especially the southern and eastern shores of the inner lagoon) provide suitable nesting habitat for special-status species such as the California least tern, elegant tern, Belding’s savannah sparrow, California brown pelican, and coastal California gnatcatcher.
also
The opposite (south) shore or the inner lagoon is managed by the California Department of Fish & Wildlife (CDFW) for its breeding and nesting habitat for several popular and listed bird species.”

The project constitutes;
 a substantial adverse effect to plant species considered by CDFW, USFWS, or CNPS to be rare, threatened, or endangered in California or with strict habitat requirements and narrow distributions; a substantial impact to a sensitive natural community (i.e., a community that is especially diverse; regionally uncommon; or of special concern to local, state, and federal agencies);
 substantial adverse effects on habitats that serve as breeding, foraging, nesting, or migrating grounds and are limited in availability or that serve as core habitats for regional plant and wildlife populations;
 interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
 substantial adverse effect on important riparian habitats or wetlands and any other “Waters of the U.S.” or state jurisdictional waters; or
 conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The FSA states; “**CEQA Impacts**
Power plant noise is unique. Essentially, a power plant operates as a steady, continuous, broadband noise source, unlike the intermittent sounds that comprise the majority of the noise environment. As such, power plant noise contributes to, and becomes part of, the background noise level, or the sound heard when most intermittent noises cease. Where power plant noise is audible, it will tend to define the background noise level. For this reason, staff compared the projected power plant noise to the existing nighttime ambient background noise levels at the affected sensitive receptors to identify any potential significant impacts for the licensed CECP.”(emphasis added) The statement seems to misunderstand the intermittent operating profile planned for this project. With 400 or starts per engine per year or 2400 starts, this project will be anything but a steady continuous noise. The Commission should correct the basis identified and consider the noise to be intermittent.

The PMPD states; “The 2012 Decision reviewed a broader range of renewable technologies, including conservation and demand-side management, larger-scale renewables (solar, wind, biomass). None were found ready, particularly when viewed individually, rather than as a complementary suite of options, to substitute for gas-fired generation. Staff contends that at present and for the near term, gas-fired

generation such as the ACECP is necessary to back them up as their output varies due to forces that the grid managers cannot control." The Commission should override the PUC decision to the contrary if it to continue to rely on this antiquated position or complete a contemporary analysis to support its position. The rest of the world has proved these technologies to be "ready" and in operation. It is only the fossil fuel industry and their collaborators that continue to argue that preferred resources are not ready.

I provided the commission with a superior option. The FSA responded; "Construction of the original project, augmented with 92 MW of battery storage, compared to the amended project, would result in an improvement in air quality as plant dispatch could be co-optimized with storage injections and removal to provide energy from a more efficient generation resource with fewer start-ups and less cycling. This co-optimization assumes that the energy directed for battery storage is from renewable energy or other power generation resources that are more efficient and lower emitting that the amended CECP. Both projects would satisfy grid reliability needs in the San Diego and Southern California areas. The CPUC has set targets for investor-owned utility procurement of energy storage (see D.13-10-040 in R.10-12-007, issued October 17, 2013) and assumed the procurement of at least 25 MW of storage by SDG&E in its Track 4 decision. For a discussion of preferred resources (demand-side management, renewable generation and storage) as alternatives to the amended CECP, see the **Alternatives** section of the Final Staff Assessment." While it would be preferable to utilize renewable energy for energy storage the plan would still be effective using the excess power generated by the facility to charge the batteries. It would smooth generation to better match demand and extend the effective operating hours of the facility. The Commission should not adopt this project over those that would result in an improvement. The Commission should require solar PV panels to be installed over the entire project area except of course the stacks. The Commission should also provide a plot map that discloses parcel lines and if this project would be on the same parcel as the prior approved project or if a new parcel is being created and if this project is subject to some action under the Subdivision Map Act. The Commission should also disclose if subsequent subdivision is allowed under this license.

The PMPD states; "A combination of Preferred Resources (renewable generation, DG, demand response, and storage) managed together to provide a stable, controllable output is the environmentally superior alternative. While the technical elements necessary to create this hybrid approach are available today, the regulatory mechanisms and market incentives necessary for its development and implementation are not in place. At some future time, it may be possible to use such a combination of technologies, in lieu of gas-fired generation, for meeting reliability requirements." My superior option can be a bridge to this future, the PUC already created the "market incentives", but the Commission must exercise its "regulatory mechanisms" to make it happen. It is absurd that the Commission is considering this inferior project by relying on a lack of regulatory mechanisms (which are under the Commissions authority) instead of utilizing its authority to manifest the future that the State needs. The PMPD states; "we strongly intend to continue pursuing preferred resources to the greatest extent possible" this project fails that promise.

The PMPD states; “In the Commission’s [CPUC] RA [resource adequacy] proceeding (R.11-10-023), we are currently exploring the ability of various preferred resources and energy storage to meet LCR needs. The ISO is engaged in this effort as well. As this highly technical process develops, we will have a better idea of how such resources can be integrated with gas-fired resources to ensure reliability. In addition, we will learn more about the extent to which non-gas-fired resources can be used instead of gas-fired resources to meet LCR needs. Until this effort is better developed, we will take a prudent approach to reliability, while still promoting preferred resources to the greatest extent feasible. The prudent approach we take entails a gradual increase in the level of preferred resources and energy storage into the resource mix, to historically high levels.” If the Commission has not completed the necessary research to make a determination in this proceeding that adequately considers storage and preferred resources, they should rely on the PUC decision to determine that this project is in excess of what is beneficial for the system.

The PMPD states; “While the CECP would modernize the generating fleet and provide faster starting for responding to peak demands, it takes significantly longer to come up to full load than the ACECP’s equipment. SDG&E’s decision to award a PPTA to the ACECP confirms the utility’s view that ACECP’s more flexible simple-cycle units are more suited to the intended use of the facility than the combined-cycle units of the CECP.”.

Incredibly the Commission chose to rely on the business decision of the utility instead of completing its own analysis or considering the decision of the Public Utilities Commission (the government agency charged with making such determinations) The PUC does not agree that this is the most suitable project. Nothing on the record indicates that that the “utility’s view” is that simple cycle units are more suitable. The existence of the PPTA merely indicates that the utility believes that it could make money from the agreement. There is no implication that the utility was acting in the best interest of the environment or people of California. The Commission should complete its own analysis on the subject or accept that the combined cycle configuration that was approved under the same set of assumptions, or my superior option represents the best available control and generation technology. The Commission should adopt a decision which includes preferred sources and storage.

Override

At the PMPD conference I tried to determine exactly which laws are being subjected to the override. The hearing officer indicated that the Commission is not overriding the coastal act, unlike the last project, but The PMPD states; “The issues to be overridden are relatively minor. The LORS inconsistency exists because the Coastal Act does not provide for variances” *and* “The City stated that, but for the nuances of the Coastal Act, it would have granted a height variance on the project.
The PMPD further states; “Because of the 90-foot tall exhaust stacks, the amended CECP is inconsistent with the local land use LORS. In many cases, the Commission would consider whether a variance would be available.[11] Here, however, Gary Barbario, the assistant city manager and former planner for the City of Carlsbad, testified about the ability of the City (and by extension the Energy Commission) to grant a variance to allow the overheight structures of the amended CECP. He testified that the local coastal plan did not contain a variance procedure. As such,

varying from the height limit would require the California Coastal Commission to amend the local coastal plan. The City would, however, support an Energy Commission override of the inconsistency.

The prior decision was more clear in its override findings it state; “The proposed project will not comply with the City of Carlsbad’s land use regulations and standards, the California Coastal Act, and the State Fire Code, as follows:

The CECP may not be consistent with the Coastal Act, by virtue of adding additional visual blight to the project area and adversely affecting aquatic species by its continued use of ocean waters for cooling. We found it consistent but adopt overrides as a precaution.

It certainly appears that the Commission is overriding the Coastal Act. The Commission should make it clear exactly what laws it is overriding.

The project as proposed violates the Coastal Act;
30254. New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal-dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

Section 30263. (Amended by Stats. 1991, Ch. 535, Sec. 1.)
Cite as: Cal. Pub. Res. Code §30263.

(a)New or expanded refineries or petrochemical facilities not otherwise consistent with the provisions of this division shall be permitted if (1) alternative locations are not feasible or are more environmentally damaging; (2) adverse environmental effects are mitigated to the maximum extent feasible; (3) it is found that not permitting such development would adversely affect the public welfare; (4) the facility is not located in a highly scenic or seismically hazardous area, on any of the Channel Islands, or within or contiguous to environmentally sensitive areas; and (5) the facility is sited so as to provide a sufficient buffer area to minimize adverse impacts on surrounding property.

(b)New or expanded refineries or petrochemical facilities shall minimize the need for once-through cooling by using air cooling to the maximum extent feasible and by using treated waste waters from inplant processes where feasible.

California Streets and Highways Code, Sections 260 through 263 – Scenic Highways
Ensures the protection of highway corridors that reflect the state's natural scenic beauty

California Coastal Act of 1976, Section 30251 – Scenic and Visual Qualities
The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the California Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Circulation/Scenic Highways Element - Implementation Policy C.2
Provides the Carlsbad Scenic Corridor Guidelines and identifies designated scenic corridors and streets. Carlsbad Boulevard is identified as a Community Theme corridor, and Interstate 5 as a Community Scenic corridor. The Burlington Northern and Santa Fe (BNSF) railroad is also identified as one of four categories of scenic corridor.

Adverse environmental effects are not mitigated to the maximum extent feasible, The project could be set back further from the highway, reduced in size, the approved project or any of the superior projects could be chosen, The approved project has a much lower visual impact and lesser impact on the adjacent habitat. All wires could be underground. The project owner could pay to enhance the habitat and other suggestions contained herein could be adopted. The Commission has not found that not permitting such development would adversely affect the public welfare. The facility is located in a highly scenic and seismically hazardous area. It is contiguous to environmentally sensitive areas; and the facility is not sited so as to provide a sufficient buffer area to minimize adverse impacts on surrounding property.

Visual impacts
I-5 carried approximately 198,000 average daily vehicle trips in 2012 (CECP 2014), slightly less than the 206,000 average daily trips carried in 2006 just before application for the licensed project (CECP 2007). Truck traffic accounts for approximately 4.8 percent of all trips on I-5 in the vicinity of Cannon Road (CECP 2014

Restricted Airspace

The FSA states; “As discussed earlier in this **Traffic and Transportation** section, aircraft departing from and arriving at McClellan-Palomar Airport could possibly experience impacts from the plumes. Aircraft using the VFR route directly over the site could also possibly experience plume impacts, as could California Highway Patrol and lifeguard helicopters that regularly fly within close proximity of the amended CECP site during patrol of state highways and beaches

It would require the project owner to work with the FAA to notify all pilots using the McClellan-Palomar Airport and to update all applicable airspace charts to indicate that project plume hazards could exist and that pilots should avoid direct overflight of the airspace above the amended CECP site. The traffic pattern over the CECP site is not congested and the surrounding airspace does not contain any restricted areas. Pilots should not have problems avoiding overflight of the CECP site. Therefore, staff believes this mitigation is adequate to reduce any potential aviation impacts to a less than significant level. Staff discussed the amended CECP’s plumes with San Diego County Airport Authority staff, who stated that the Airport Authority (which acts as San Diego County’s Airport Land Use Commission) only reviews permit applications processed and submitted by local agencies and declined comment (CEC2014st). Staff also discussed the plumes with staff from the McClellan-Palomar Airport, who agreed with the conclusions of the traffic and Transportation section of the Preliminary Staff Assessment and were satisfied with staff’s proposed conditions of certification, which are included in this FSA

This plan is to build the facility with the hope that the project owner is to try and get Federal approval to shut down the airspace around the facility. The Commission should disclose the effect of the project owners failure or success in obtaining such approval. What will be the effect on grid stability if the state is vested in this project and it is unable to operate? Will the people of California still be expected to pay for the project if it does not get Federal approval? Will the people likely pay more to bring emergency power online? Why is there no information on this record that the project owner commenced Federal review of this or the prior approved project?

What if the Notam is approved? “Aircraft using the VFR route directly over the site could also possibly experience plume impacts, as could California Highway Patrol and lifeguard helicopters that regularly fly within close proximity of the amended CECP site during patrol of state highways and beaches.” FSA What is the impact on public safety if these emergency services are curtailed in the vicinity? Will there be more drownings or highway fatalities? Has the Commission sought opinions from emergency services regarding this issue? Does the Commission agree that plume impact could result in significant catastrophic events? What about pilots that fail to get the memo or NOTAM? How likely will they be to crash into the new wires and busy highway or townspeople? There should be some Threshold at which the Commission would consider shutting down the airspace significant? My simple math shows the top of the plume to be twice as high and 5 times the area at the top but it is unclear from the record how much bigger an area is to be closed to air traffic due to the amendment. Could the Commission license projects that effectively shut down all of the airspace in San Diego County, without finding a significant impact, as long

as they tell the developers to try and get a NOTAM before they commence operations?

It appears that this issue was considered on the Eastshore Energy Center and others but given short shrift in this proceeding. The Commission should review the Eastshore Energy Center proceeding. The Eastshore denial determined;
“1) The facility would cause a significant cumulative public safety impact on the operations of the nearby Hayward Executive Airport by further reducing already constrained air space and increasing pilot cockpit workload. 2) The thermal plumes from the facility would present a significant public safety risk to low flying aircraft during landing and takeoff maneuvers due to the close proximity of the Hayward Executive Airport.” In some ways the impacts of a NOTAM in the project location will higher than that in Eastshore. Eastshore did not have the direct impact of curtailing emergency services. Pilots that fly in the Hayward would be expected to have acclimated to the various constraints The constrained airspace in Hayward would cause pilots to be much more conscious of constraints than in an area with relatively fewer constraints.

The Commission should consider the; Federal Aviation Administration Memorandum JAN 2 1 2015 Technical Guidance and Assessment Tool for Evaluation of Thermal Exhaust Plume Impact on Airport Operations, and utilize the provided Exhaust-Plume-Analyzer. (Memorandum attached and incorporated into these comments)

Staffs contention that they tried to talk to the Airport land use commission but got no response, so they talked to some dudes at the airport and they said it was cool, falls well short of a reasoned analysis as a basis for this project. The Commission should not approve the project without consulting the FAA.

The PMPD states; “Neither of the no project alternatives—leaving the existing EPS in place or the licensed CECP—would avoid or substantially lessen the significant cumulative visual impact. The EPS would not provide the project benefits and, while the CECP would provide many of the project benefits, it would do so at the cost of a larger visual profile and uncertainty about the ultimate removal of the EPS 200-foot high enclosure and 400-foot stack.” The CECP is a much smaller visual impact with 2 stacks and 2 plumes in a much less sensitive location on a much smaller site the original site is 23 acres, the new site is 30% larger at 30 acres. The FSA indicated that the larger footprint required additional analysis but never completed it. The Commission has demonstrated that market forces will cause the removal of the original stack regardless of either project.
.
The PMPD states; “The no project alternative of constructing the licensed CECP would be more efficient than the ACECP when it is fully warmed up, releasing fewer emissions per unit of generation. It fails, however to achieve the objectives of obtaining a PPA and reducing inconsistencies with the City of Carlsbad’s land use LORS. It may also delay the removal of the EPS facility and it has a more prominent visual profile than the ACECP. There is no evidence that the original project would not receive a PPA and be at least as consistent with the LORS.

The PMPD states; “A land use incompatibility may be considered to be a significant impact under CEQA.14 In the 2012 Decision, we found that the land use

incompatibilities were a significant environmental impact and overrode the impact.15 The purpose of the height limit in the Agua Hedionda land use plan is to preserve visual resources in the coastal area.16 For the ACECP, despite the lack of conformity with the height limit, the changes between the amended project and both the existing conditions and the approved project lessen the visual impacts and discontinue the use of ocean water for cooling purposes. The degree of incompatibility of the amended project with its surroundings is lower than that of either the existing Encina power plant or the approved CECP. Therefore, the land use incompatibility is not significant under CEQA.17 This statement is incorrect because the new project has a much higher visual impact but images of the actual appearance have not been disclosed.

The PMPD states; “Intervenors Terramar Association, Robert Sarvey and Robert Simpson contend that the development is not coastal dependent.22 We agree that the ACECP is no longer a “coastal dependent use”.23 The City concurred with this conclusion.24 The Intervenors further assert that the loss of coastal dependency prevents a finding that ACECP is consistent with the Coastal Act. We disagree, as do the project owner, Commission staff, and the City of Carlsbad.25 Gary Barbario, the City of Carlsbad’s assistant city manager, testified that coastal dependence is not required in order for a project to be consistent with the Coastal Act, citing houses, commercial, and other industrial development as occurring within the 37 percent of the city that lies within the coastal zone.26 With the amendment of the City’s local LORS to now have the ACECP be consistent with the general plan, local coastal program, and the zoning, the project is consistent with the policies of the Coastal Act” As I have briefed the Commission does not have delegated Federal Authority under the Coastal Zone Management Act to issue permits in lieu of the Coastal Commission. The Commission procedure does not include the public notice, participation or recourse opportunities that are required under the CZMA or state Coastal Act. .

The PMPD states; “ACECP, while not itself a source of renewable energy, facilitates the integration of renewable energy into the electricity system by providing 632 MW of backup generation to even out fluctuations in renewable generation due to factors such as changes in wind velocity and solar shading by passing clouds. Producing electricity from renewable resources improves local air quality and public health, reduces global warming emissions, diversifies our energy supply, improves energy security, enhances economic development and creates jobs. In addition, California’s Renewable Portfolio Standard specifies that retail sellers of electricity serve 20 percent of their load with renewable energy by 2014 and 33 percent of their load by the end of 2020.” The above conclusion is without basis. The Commission must determine how much dirty energy it considers necessary to integrate renewable energy or rely on the PUC determination that this size project is more than is beneficial for the State.

The developer paid and additional $186,613 initially to the air district for the amendment but has not paid the Commission for this amendment. Maybe if the Commission collected appropriate fees they would not subject to furloughs and layoffs.

The PMPD claims; “By facilitating the integration of renewable energy into the electricity system and replacing less efficient units that currently serve that role, ACECP will reduce California’s dependence on fossil fuels.” It is absurd that developing new fossil fuel generation will reduce generation on fossil fuels.

The PMPD states; “Additional indirect economic benefits, such as employment in local service industry jobs and induced employment, will result from these expenditures associated with the construction and operation of ACECP.” These benefits should be weighed against the loss of jobs in renewable energy and economic disadvantage experienced by the people of the state through centralized monopolistic dirty energy production.

This project will displace renewables particularly the portion of the project that is over and above what the PUC approved. The Commission cannot make a determination of public benefit or convenience especially for the excess MW beyond what the PUC approved..

The PMPD states;
“The **Cumulative Impact Mitigation Plan** mitigation plan shall include a landscape planting buffer zone along the entire CECP/I-5 boundary, to accommodate replacement tree canopy of sufficient height and density and to provide substantial visual screening of the tall amended CECP features, including exhaust stacks and transmission poles; and to substantially replace any existing tree canopy on the eastern CECP boundary lost to highway expansion. The landscape buffer may occupy portions of the CECP site, the Caltrans right-of-way, or both. Wherever feasible, the landscape buffer shall maintain a minimum 20 foot width. Where infeasible, exceptions shall be approved by the CPM.”
Due process requires that This plan needs to be developed and presented to the public for comment prior to licensing of the facility.

These comments demonstrate;
C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative

As implied by the paragraphs above, the proposed amendment to the licensed CECP result in changes and new information that was unavailable when the project was originally licensed. The Commission should consider all statements herein, particularly those posed as questions to be separate and distinct comments and objections to the PMPD/license. They are all also allegations that the project would violate local, State, and Federal laws. The Commission should also consider all of my filings during this and the previous proceeding the same way. Any of my filings that the commission has not replied to I consider to be, undisputed and I should not need to restate them unless the Commission responds that it wishes that I restate or

clarify my comments. It is incredible that the committee is poised to recommend to the full commission a proposal that includes such superficial consideration

Rob Simpson
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Attachments
FAA memorandum
Longcore letter

USC Dornsife
Dana and David Dornsife
College of Letters, Arts and Sciences

SPATIAL SCIENCES INSTITUTE
Travis Longcore, Ph.D.
Associate Professor (Research)

July 5, 2015

Rob Simpson
Executive Director
Helping Hand Tools

Dear Mr. Simpson:

I am responding to your email in which you brought to my attention citation to my research on avian collisions with regard to the Carlsbad Energy Center Project Amendment: Final Staff Assessment. As I understand the project, it would involve replacing two 400-ft stacks with six 90-ft stacks that would emit high-velocity, high-temperature plumes extending several thousand feet into the air. I looked over relevant sections of the Final Staff Assessment and have the following observations, which you are welcome to share with the California Energy Commission. I have prepared this letter for you *pro bono* as an effort to ensure that the best available science is used in the environmental review process. My use of letterhead is meant to provide contact information and establish my identity. It does not represent any endorsement by the University of Southern California as an institution. The contents of this letter are my professional opinion and not the position of my employer.

The Final Staff Assessment relies on our paper in *The Auk* (Longcore et al. 2008) to conclude that avian collisions with the new stacks would be less than with the old stacks. The *Auk* paper addresses avian collisions with tall communication towers and therefore is limited to the impacts on the species that tend to collide with those towers, which are almost entirely nocturnally migrating songbirds. The proposed project is adjacent to a wetland, which poses collision risks for a different suite of avian species. Our 2008 research was updated with a quantitative estimate of mortality by tower height classes (Longcore et al. 2012), but this work was not cited. Ignoring any potential impacts of the thermal plumes and looking at the potential collisions resulting from the height of the stacks themselves, both configurations (existing and proposed) would kill very few of the birds for which risk of collision increases with height (i.e., nocturnally migrating songbirds). A 400-ft obstruction lit only with strobe lights might result in 4 collisions per year, while a 90-ft obstruction similarly lighted would result in less than 1 collision per year, but these numbers apply to the suite of species that are sensitive to obstruction height and do not take into account collision risk that derives from proximity to the wetland habitat or the impacts of the thermal plumes.

The issue of nocturnally migrating songbirds colliding with the proposed stacks is not the most relevant impact at the project site, which is located adjacent to a significant coastal wetland with large numbers of migratory waterbirds, waterfowl, and shorebirds. The impacts to waterbirds and other species associated with the lagoon and Pacific Ocean are much more relevant than potential collisions by nocturnal migrant songbirds. Our research does not address collisions with structures next to wetlands. Avian collisions with structures are generally higher next to wetland sites (Drewitt and Langston 2008) and indeed researchers

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are particularly concerned about collisions with power lines that are located next to wetlands, where waterbirds, waterfowl, and shorebirds collide with obstructions (Willard and Willard 1978, Erickson et al. 2005). A study of effects of the project on waterbirds, waterfowl, and shorebirds as they approach and take off from Agua Hedionda Lagoon, which is bisected by the project site, would be far more relevant to the impact analysis than is our research. It is critically important that impact analysis concentrate on the different groups and species of birds that will be impacted and not on a generalized idea of "birds" that obscures differential impacts on different groups (Longcore et al. 2013, Longcore and Smith 2013).

Our research does not address the impacts of production of high-velocity, high-temperature plumes extending upward from the stacks into the atmosphere. As described in the Final Staff Assessment, these plumes would extend several thousand feet up into the air and the shorter height of the tower does not offset this feature. The Final Staff Assessment refers to an unpublished white paper to argue that these plumes have no significant impact on birds:

> The Energy Commission closely monitors all projects under its jurisdiction, including solar thermal, coal- and gas-fired. Evidence of significant and predictable injury or mortality from thermal or exhaust plumes has not been reported or documented at other power plants; has not been noticed at the Encina plant, and is not expected to occur with the proposed CECP project. The question of impacts associated with thermal plumes and/or exhaust stacks has been raised in previous siting cases. In 2009, the Contra Costa County Airport Land Use Commission (ALUC), filed a letter with the Energy Commission requesting data on potential avian—specifically raven-attraction to the Mariposa Energy Project (MEP) cooling stacks. The MEP consultants performed a literature review investigating avian interactions exhaust stacks and plumes (CH2M Hill, 2010). This technical paper included interviews with CEC senior biologist Rick York, and failed to identify any significant mortality or injury associated with these project features at operating power plant sites. Staff has conducted an updated literature review, and, as mentioned, has no further internal Energy Commission data or published data that would indicate impacts would occur with a frequency or intensity that would have an adverse biological effect. It is not uncommon for raptors and scavenging species such as vultures to utilize thermal currents to search for prey and carcasses. While it is possible that a raptor may be attracted to a thermal upcurrent emanating from the stacks, there is no data to suggest that a raptor could be injured or killed while doing so, and staff is unaware of any significant documented events of this nature; although it certainly is possible. The stacks would not provide roosting or nesting opportunities for birds or bats, and given the industrial characteristics and pervasive human presence on the CECP site, the data indicates that most wildlife would have sufficient environmental cues to avoid the site (Final Staff Assessment, p. 4.3-21).

This analysis, and the report upon which it relies, are insufficient to conclude that the high-velocity, high-temperature plumes would not have an impact on birds and bats at the project site. The cited memorandum is focused on attraction of ravens to thermal plumes and relies on anecdotal reports from staff at power stations to assess any adverse impacts to wildlife. It is not clear that the observations were at stacks with high-velocity, high-temperature plumes from gas-fired turbines. The text of the report does not specify that any of the power plants described in that report were in fact of the type proposed for the Carlsbad Energy Center Project Amendment. The conclusion that birds will "avoid the site" is likewise tenuous, given that the project site is adjacent to wetlands and in fact birds might fly over the site to get from one part of the lagoon to another or to move from the ocean to the lagoon. Furthermore, the plumes reaching up several thousand feet would provide no visual cues whatsoever and birds approaching the lagoon would have no warning of them until they were encountered.

As a scientist interested in bird collision issues and anthropogenic avian mortality in general, I am unaware of any published studies addressing the impacts of high-velocity, high-temperature thermal plumes on birds, especially in sensitive locations such as next to wetlands. The information put forth in the Final Staff Assessment is unconvincing, especially because the main focus of the reference cited in support of the evaluation has to do with raven attraction to thermal plumes and not the potential for accidental flight through high-temperature plumes causing injury or death, such as what occurs when birds encounter the solar flux at concentrating solar power plants (McCrary et al. 1986, Kagan et al. 2014). No information is presented on the effects of thermal plumes from gas-fired power plants on small passerines, shorebirds, waterbirds, waterfowl, or bats, all of which might attempt to fly over the project site.

As a final item, I noticed that the Final Staff Assessment uses the "60-decibel rule" in assessing impacts to wildlife from noise. This threshold does not have biological validity and is not supported by current scientific research. The 60 dB(A) Leq threshold for impacts on avian species was first put forward in 1991 in an unpublished study conducted for the San Diego Association of Governments in which "it was theoretically estimated that noise levels in excess of 60 dB(A) Leq in [Least Bell's] vireo habitat would mask the bird's song, subsequently reducing the reproductive success of this species during their breeding season…." (County of San Diego 2000). This study has never been published or peer reviewed. The only citation in the scientific literature to the rule is a conference presentation by Bowles and Wisdom (2005), and this paper did not support the 60 dB(A) Leq standard:

> The rule was originally intended to prevent masking of species-typical songs of endangered birds such as the Coastal California Gnatcatcher. However, no research is available to demonstrate the effectiveness of the rule for any noise-related impact. Although A-weighting is probably a conservative estimator of bird exposure in the range from 125 Hz to 8 kHz, it may underestimate exposure at very low frequencies. Its utility as a weighting function has not been tested against other possible weighting procedures, such as use of the species-typical auditory threshold function. Additionally, where sources are intense but intermittent, Leq is unlikely to be a useful metric (Bowles and Wisdom 2005).

Scientific understanding of the effects of noise on birds has improved greatly, with studies published that present heuristic and mathematical models that quantify the pattern of impacts caused by noise (Hill 1990, Reijnen and Foppen 1994, Reijnen et al. 1996, Reijnen et al. 1997, Forman et al. 2002, Peris and Pescador 2004, Slabbekoorn and Ripmeester 2008, Barber et al. 2010, Naguib 2013, Halfwerk and Slabbekoorn 2015). Evidence shows that breeding bird habitat can be degraded at noise levels as low as 36 dB(A) (Reijnen et al. 1996, Reijnen et al. 1997). Rather than relying on undocumented research that has never been published in a peer-reviewed journal, the CEC should incorporate published scientific evidence of the impacts of noise on wildlife into its analysis.

Sincerely,

Travis Longcore, Ph.D.
Associate Professor (Research) of Spatial Sciences

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