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STATE OF CALIFORNIA
Energy Resources Conservation
and Development Commission

In the Matter of:

Petition to Amend The
EL SEGUNDO ENERGY CENTER PROJECT

DOCKET NO. 00-AFC-14C

EL SEGUNDO ENERGY CENTER LLC'S
WRITTEN TESTIMONY

October 12, 2015

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STATE OF CALIFORNIA
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In the Matter of:

DOCKET NO. 00-AFC-14C

Petition to Amend The
EL SEGUNDO ENERGY CENTER PROJECT

Opening Testimony of El Segundo Energy Center, LLC
in the El Segundo Energy Center Petition to Amend (PTA) Proceeding (00-AFC-14C)

*Topic: **Installation of Clutch Technology***
*Date: **October 12, 2015***

*Sub-topic: **Air Quality Impacts of Clutch Technology***

*Sub-topic testimony by: **Gary Rubenstein, Sierra Research***

In other proceedings before the Commission, it has been alleged that the installation of clutch technology on units such as the El Segundo Power Facility Modification (ESPFM) project simple cycle turbines would result in reductions in emissions of criteria pollutants and/or greenhouse gas emissions.¹ However, no evidence has been presented to establish that the use of clutch technology would reduce air or GHG emissions, and any such evidence would be speculative, at best. It is not speculative, but certain, that the use of clutch technology would, however, result in a small increase in air and GHG emissions due to the additional rotating mass associated with this technology.

As discussed in more detail below, reactive power is provided to the grid when the gas turbines are operating. The purpose of installing a clutch between the gas turbine and the generator in a simple cycle installation is to allow the generator and associated components to operate as a synchronous condenser. A synchronous condenser would enable the facility to provide reactive power when the gas turbines are not operating.

Reactive power is expressed in units of megavars (MVars). Electrical energy (real power², as contrasted with reactive power) is expressed in units of megawatt-hours (MW-hrs). Synchronous

¹ Although this issue has not been raised in the ESPFM proceeding, the Applicant is presenting this testimony in anticipation of the issue being raised at evidentiary hearings.

² Real power is required to spin and synchronize the generator to the grid each time the generator is started as a synchronous condenser. Since that real power is not generated by the unit itself, it would come from the grid, with associated emissions from the marginal generating resource at the time the synchronous condenser is dispatched.

condensers neither produce nor consume electrical energy (MW-hrs). Accordingly, synchronous condensers do not displace energy produced at other locations. Rather, synchronous condensers can enable the production of electricity at other sites, remote from the location of the synchronous condensers, if that is desired for other reasons and if transmission of that remote energy is limited due to inadequate reactive power at the receiving end of that line.

In the case of the simple cycle turbines at ESPFM, a clutch would facilitate the use of synchronous condensers at times when reactive power is needed for local grid reliability, but the energy that would be produced by the simple cycle turbines is not needed to meet demand. Under those conditions, the energy needed to meet demand would still have to be produced at another generating facility, and the production of that energy would likely have air and greenhouse emissions. The magnitude of those emissions would depend on the type of generating resource producing that electricity. Predicting where that electricity would be generated, and how the emissions from that generation would compare with those of the ESPFM units (or other possible operating units) is not possible without detailed, hour-specific modeling of the transmission system.³ This makes it impossible to predict whether, and to what extent, the use of ESPFM units as synchronous condensers would result in reductions in either air or GHG emissions.

The situation in which synchronous condensing could be required at the ESPFM facility would be one in which the demand for electricity in the LA Basin could be met with a combination of in-basin and imported generation (excluding the ESPFM units fitted with clutch technology), but the available and/or desired imported generation could not be accommodated due to insufficient reactive power within the LA Basin. Under these conditions, the options would be to (1) decrease the amount of imported power to match the available reactive power and increase in-basin generation to make up for the energy lost as a result of reduced imports, or (2) use the ESPFM units as synchronous generators to accommodate the higher level of imported power.

The air quality and GHG impacts associated with these options depend on the emissions associated with the displaced imported power as compared with the emissions associated with the potential in-basin power. If the marginal imported power that would be displaced was renewable energy, and the replacement in-basin power was fossil energy, then the use of synchronous generators at ESPFM would result in an out-of-basin reduction in air and GHG emissions to the extent that the renewable energy had lower air and GHG emissions. On the other hand, if the marginal imported power that would be displaced came from fossil sources, and the replacement in-basin power was similarly from fossil-sources, there might be a benefit or disbenefit from the use of synchronous generation depending on the relative air and GHG emission rates from the displaced and in-basin generating sources. Note that this comparison does not, and should not, assume that the replacement energy would come from ESPFM units; that would be the case only if all more-efficient in-basin generating units had already been fully dispatched at the point where the displacement becomes relevant.

³ Note that this is in contrast to a more general assessment of the impact that ESPFM would have on GHG emissions from the grid. That assessment can be performed based on CAISO's dispatch order; in contrast, the use of ESPFM units as synchronous condensers would not be based on the dispatch order, but would be based on site- and time-specific local reliability needs.

What is certain, however, is that the presence of the clutch on the gas turbine shaft would result in a small decrease in ESPFM's rated plant output which, in turn, would result in small increases in air and GHG emissions on the grid. The decrease in plant output would result from the additional rotating mass on the gas turbine shaft: this additional rotating mass requires energy to rotate, and the required energy comes from the fuel used by the turbine. Instead of being used to generate electricity, this energy would be lost to friction and the energy would be rejected from the turbine as heat, likely in the clutch's lubricating system.

Although, in theory, the decrease in plant output could be offset by increasing the amount of fuel burned in the turbine, the maximum firing rate is temperature-limited by the design of the turbine. Consequently, when the turbine is operating at its maximum heat input, the impact of the increased rotating mass would be manifested as a decrease in electrical output. Since the overall demand for electricity is unaffected, the lost electrical output at ESPFM would be made up for by other generating units – and these units would be less efficient and higher emitting (per megawatt hour of electricity produced) than the ESPFM units due to the CAISO dispatch order.⁴ During periods when the ESPFM turbines were operating at less than their maximum rated load, the loss in electrical output would be compensated for by an increase in fuel consumption by the ESPFM units to maintain the dispatched generation level. This additional fuel would, in turn, result in an increase in air and GHG emissions.

In summary, the use of clutch technology would not result in a direct decrease in air pollutant or GHG emissions at the ESPFM site. Whether there would be an indirect change in air pollutant or GHG emissions at other locations is speculative, and the magnitude (and direction) of any change could not be determined without understanding why and under what conditions there was a need for reactive power at the ESPFM site, as well as where the corresponding real power was being generated. Finally, the use of clutch technology at the ESPFM site would result in a small but real increase in air pollutant and GHG emissions associated with the energy required to rotate the clutch mechanism at all times when the ESPFM units were operated.

Sub-topic: Physical Ability to Accommodate Clutch Technology Given Project Size and Design.

Sub-topic testimony by: Steve Rose, NRG Energy, Inc.

A Trent 60 combustion turbine generator (CTG) package is available with a clutch assembly for synchronous condensing service. According to drawings provided by the OEM, the clutch assembly is approximately 8.5 feet overall in length. Installing this equipment would move the generator assembly 8.5 feet further from the exhaust centerline (to the east as shown on Figure 1-2b of the PTA). An examination of the site layout indicates that shifting the location of each of the Trent 60 generators 8.5 feet east can be accomplished with minimal effect on other proposed plant equipment.

Rolls-Royce, (now a Siemens company/product), has offered the Trent 60 with clutch option on several occasions but none have been sold nor are any in commercial service. While there appears

⁴ The lost energy would not be replaced by zero-emitting sources such as wind and solar, because those units would have already been dispatched prior to the dispatch of the ESPFM units.

to be space to accommodate clutches on the Trent 60 units, there is insufficient space to move the generators and high voltage equipment further east to accommodate clutches in the GE combined cycle unit (CC-Fast). Lack of space notwithstanding, adding a clutch to the CC-Fast steam turbine generator also seems illogical. In order for the steam turbine to start up, the CTG must be started and loaded to make steam in the heat recovery steam generator (HRSG), which would then be used to spin up the steam turbine generator (STG) so as to synchronize and close the STG breaker. The steam turbine and gas turbine would then be shut down, leaving the STG spinning in synchronous condenser mode.

While I am unaware of it ever being done, it is conceivable that a clutch could be added between the steam turbine and generator, and a pony motor and second clutch added to the exciter end of the generator. This would enable the steam turbine generator to be spun up and synchronized without having to start the CTG to spin up the steam turbine. Since there is no space available on the El Segundo site to fit a clutch between the steam turbine and generator, the notion of adding a clutch and pony motor to the generator exciter end is infeasible.

*Sub-topic: **Drawbacks Associated with the Use of Clutches at ESPFM.***

*Sub-topic testimony by: **Scott Valentino, NRG Energy, Inc.***

For the reasons stated below, Project Owner has come to the conclusion that there is no compelling reason to incorporate clutch technology into the project design.

No Identified Need for Voltage Support: Neither the California Independent System Operator (CAISO) nor the Investor Owned Utilities (IOUs) have identified a need for voltage support at the site, nor do they have a mechanism in place for separately compensating for this service.

Retirement of SONGS: The permanent shutdown of San Onofre Nuclear Generating Station (SONGS) in 2013 resulted in the need for voltage support in northwest San Diego and Orange County; however, no such need has been identified in northwest Los Angeles Basin. There was an identified short term need in the Huntington Beach area after SONGS retired, which was handled through the conversion of two of the generating units at the Huntington Beach Generating Station to synchronous condensers. However, this need was to address a specific unforeseen situation at a specific time and at a very specific and critical location to ensure grid reliability; the existence of this need several years ago cannot be viewed as the “norm” to any degree. The possibility that a higher penetration of renewables (up to 50%) might cause future locational needs for additional voltage support at the ESPFM location has not been studied, nor has any such need for voltage support (locational or otherwise) been identified.

Solving Voltage Support Needs: The IOUs (specifically Southern California Edison [SCE] and San Diego Gas & Electric [SDG&E]) have traditionally identified ways to meet voltage support needs through transmission projects, and have met these needs (and will likely continue to do so) through either the installation of Static VAR Compensator(s) (SVC), Synchronous Condensers, or Static Synchronous Compensators (STATCOM). In fact SDG&E has identified the need for 300Mvar SVC at Suncrest due to the retirement of SONGS and is meeting this need through their approved transmission project(s). SDG&E and SCE are in the process of installing, or have

recently installed, new reactive power support devices in and around the area to which SONGS previously provided reactive power support.⁵

Peakers versus CCGT: The rationale for clutches was referenced in relation to peakers with low capacity factors, and never intended to be carried over to CCGTs. Clutches are devices that allow generators to be synchronized to the grid and operate as synchronous condensers when they are not producing real power. It does not make sense to consider the installation of a clutch on a CCGT which will typically be running at a 50 percent, 60 percent or even higher capacity factor; the ESPFM CCGT Unit will already be providing voltage support when it is running. The capability to include a clutch on a peaker (specifically an LMS 100), as proposed by General Electric, was intended to offer additional value, by providing voltage support, for a unit that would not otherwise already be running (i.e., was not providing real power to the grid). A peaker is traditionally brought on (and subsequently shut off) to meet short term, intermittent real power needs, whereas a CCGT will typically be running as an intermediate or base load unit ramping up and down to meet real power needs for extended periods (and thus also capable of providing voltage support while it is generating).

Commercial Contract/ PPA: – The ability to secure a Power Purchase Agreement (PPA) in California is a highly scrutinized and competitive process; the winners are selected on a least cost, best fit basis. Given that the power grid modeling used to evaluate bids only evaluates resources based on their real power capability (and specifically requested ancillary services provided), there is no value assigned to providing reactive power support when none has been requested by the serving utility. In addition, adding a material cost to a project in terms of the procurement and construction would likely make the project less competitive in a solicitation under the existing evaluation process.

Alternatives for Meeting Potential Future Voltage Support Needs: - A more cost effective mechanism to meeting voltage support needs, if necessary, and that would not require the installation of clutches on peakers or a potential retrofit down the road (which would be much more expensive) would be to convert any one of the existing steam turbine generators that will be retiring to comply with the State Water Resources Control Board's (SWRCB) Once Through Cooling Policy to synchronous condensers (akin to what was done at Huntington Beach). The cost of such a conversion, whether done in place or with a relocation of the generator, will likely be much cheaper in terms of the reactive power capability provided due to the sheer size of the generators that are being retired. For example, the Units that could be converted at El Segundo could provide up to 335MVAR each, whereas the two peakers in question would provide only a combined 110 MVAR of capability. The \$ per Mvar capability would be much cheaper in this scenario.

In summary, although it is theoretically feasible to incorporate clutches into the Trent 60 peakers being considered under the PTA to allow them to operate as synchronous condensers, there are many drawbacks to doing so. First, the turbine manufacturer has never delivered these units with clutches, and the commercial terms under which the turbine manufacturer might offer clutches for

⁵ See presentation at http://www.caiso.com/Documents/PresentationPTOProposedMitigationSolutions_Sep22_2015.pdf, Slide 4. The linked image has been placed at the end of this testimony for your convenience.

these units are uncertain. Second, while the loss of SONGS in 2013 increased the need for reactive power support in and around that location, to my knowledge, there has been no need for additional reactive power support identified for the ESPFM location. Third, adding clutches to these units is not the most effective or cost effective means for providing reactive power at this site. Finally, absent a contract that specifically provides for the cost of adding the clutches, such as a PPA or a CAISO Reliability Must-Run Agreement, there is no mechanism in place to support the additional cost of the conversion or to provide compensation for providing reactive power. A requirement to incorporate clutches would likely cause the ESPFM to not be the most cost effective solution under a utility Request for Offers (RFO) without significant changes to the procurement process whereby there is explicit compensation for the provision of reactive power. Adding in a requirement for reactive power is only useful if the plant ultimately gets contracted and built, whereas utilizing existing retiring generators to solve for a future identified grid voltage issue is a much more prudent approach.

Los Angeles Basin and San Diego Metropolitan Areas



*Sub-topic: **Proposed New Condition of Certification, CONTINGENCY-3.***

*Sub-topic testimony by: **Scott Valentino, NRG Energy, Inc.***

For the reasons stated by Project Owner's other witnesses and myself, Project Owner does not believe that this project will benefit from the incorporation of clutch technology into the project design. If, however, the Commission sees benefits that can only be obtained by incorporating clutch technology into the design of the Trent 60 units, Project Owner believes that it is feasible to do so under certain conditions. In that case, Project Owner proposes a new CONTINGENCY Condition of Certification be incorporated into the project that would allow the Project Owner to incorporate clutch technology into the Trent 60 units if, prior to the start of construction, CAISO or an IOU identifies a need for voltage support at the project site and commercial opportunities for operation of the peaking turbines as a synchronous condenser are available. Project Owner therefore suggests CONTINGENCY-3, which reads as follows:

CONTINGENCY-3

Project Owner shall include clutch technology that facilitates dispatch as synchronous condensers in the design and construction of the Trent 60 units if all of the following conditions are met prior to the start of construction:

- (1) It is physically and technically feasible to install clutch technology on the Trent 60 units without modifying the environmental impacts characteristics of the project;
- (2) clutches are available as warranted components of the Trent Power Trains; and
- (3) a contract that allows Project Owner to recoup the costs of installing clutches and obtain compensation for providing reactive power has been entered into and approved by the California Public Utilities Commission (CPUC).

Condition (3) can be waived by the Project Owner, should Project Owner decide to install clutches in anticipation of such equipment being valued by CAISO or an offtaker.

VERIFICATION: At least one hundred and twenty (120) days prior to start of construction, Project Owner shall submit to the CPM a Clutch Feasibility Report (CFR) that reports of Project Owner's decision of whether to include clutches in the final design of Trent Units. The CFR shall address all three conditions and explain whether or not that condition was met or not. The CPM shall approve the report unless the CPM finds the conclusions in the CFR unsupported by substantial evidence.

The CPM shall approve the CFR or return it with comments within thirty (30) days of receipt.

If returned by the CPM with comments, Project Owner shall respond within thirty (30) days with a revised CFR for approval by the CPM.

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DOCKET NO. 00-AFC-14C

**Opening Testimony of El Segundo Energy Center, LLC
in the El Segundo Energy Center Petition to Amend (PTA) Proceeding (00-AFC-14C)**

Topic: Conditions of Certification

Date: October 12, 2015

Subtopic: Contingency Conditions of Certification

Sub-topic testimony by: George Piantka, NRG Energy Inc.

The Combined Final Staff Assessment for the El Segundo Energy Center Petition To Amend proceeding includes two new Conditions of Certification (“COCs”) titled CONTINGENCY-1 and CONTINGENCY-2. In introducing the new conditions, Staff noted that an integral part of the project and Staff’s analysis is the decommissioning and demolition of Units 3 & 4 and the discontinuation and plugging of the once-through cooling facilities associated with those units on timely basis tied to approval of the PTA. The new conditions were introduced “[t]o coordinate the timing and ensure the compliance of these complex and interrelated activities. . .” (Combined FSA p. 3-12.) As written, however, the newly proposed CONTINGENCY-1 and CONTINGENCY-2 conditions have unintended consequences on this project.

i. Demolition of Units 3 and 4 is a Core Part of the Proposed Amended Project and Not a Separate Project Before the Commission.

Project Owner agrees with Staff that the demolition of Units 3 and 4 and associated facilities such as the once-through cooling facilities is a core part of the PTA. The project was proposed as a single comprehensive replacement of Units 3 and 4 with new units and other onsite improvements and changes. Approval of the PTA solidifies a new status quo for Units 3 and 4. Unit 3 retired in 2013 following the start-up and commissioning of El Segundo Energy Center Units 5 – 8. Unit 4 will retire at the end of 2015 in compliance with the State Water Resources Control Board’s (SWRCB) Once-Through Cooling Policy. Steps will be taken to satisfy the SWRCB, the Los Angeles Regional Water Quality Control Board (LARWQCB) and South Coast Air Quality

Management District (SCAQMD) that the steam generating units will no longer operate, and consequently, will eliminate the use of once-through cooling for those units. The air permits for both units will have been surrendered following December 31, 2015 and, once project financing has been arranged, the units and their associated structures will be demolished to make room for new, more efficient units. However, without an overall project that can produce income, there is no capital funding to pay for the expenditure of demolishing and removing Units 3 and 4. In short, without demolition of Units 3 and 4 there is no project and, similarly, without the project there is no ability to demolish Units 3 and 4.

Any language that places abbreviated timeframes on the Project Owner or that mandates demolition even if financing for the overall project is unavailable will undermine Project Owner's ability to achieve the benefits of demolishing Units 3 and 4. Project Owner does not believe such an outcome is Staff's intention and therefore proposes the changes described below to the proposed conditions CONTINGENCY-1 and CONTINGENCY-2.

ii. CONTINGENCY-1's Verification Requirement Timeframe Should be Adjusted to Reflect the Realities Associated With Moving From a Draft Plan to a Final Plan After Agency Input.

CONTINGENCY-1 requires the project owner to prepare a Demolition, Removal and Remediation Plan (DRRP) for Units 3 and 4 and the associated once-through cooling structures. The Project Owner is required to submit a draft DRRP to interested agencies for review and comment and to the CPM for review and approval. After receiving agency comments, the Project Owner is required to submit a final DRRP to the CPM for review and approval.

The DRRP is a useful tool and Project Owner believes that agency input should inform such a plan. However, CONTINGENCY-1's verification requirement creates a timeframe that may not be feasible. After the Draft DRRP is submitted, agencies have sixty (60) days to provide comments on the DRRP. The verification then requires a Final DRRP to be submitted within thirty (30) days of receiving comments. Depending on the scope of agency comments and the need for further interaction with agencies, it is possible that the development of a final plan could take considerably longer. Project Owner proposes eliminating the thirty day timeline for going from a draft plan to a final plan as shown below:

Verification: On or before one (1) year after the Energy Commission Decision, (or other CPM-approved mutually agreeable date), the project owner shall provide the Draft DRRP to the CPM for review and approval and to the city of El Segundo and other interested agencies, for review and comment. DRRP comments are due to the CPM within 60 days after DRRP submittal, (or other CPM-approved date). ~~Within 30 days of~~ **Following** receipt of **agency** comments, the project owner shall submit a Final DRRP to the CPM for review and approval.

iii. CONTINGENCY- 2 Should Be Revised to Link Demolition of Units 3 and 4 with the Start of Construction of the Project and Changes Described in the PTA.

CONTINGENCY-2 requires the project owner to obtain final permits and commence decommissioning of Units 3 and 4 within one year of the approval of the final DRRP. Project Owner finds the language of the newly proposed condition problematic for several reasons.

First, the condition, when read alongside CONTINGENCY-1 in its current form, requires the Project Owner to commence decommissioning of Units 3 and 4 within 2 years and 3 months of the Energy Commission Decision. This places a date certain for commencement of construction that is less than the three (3) years plus two 1-year extensions available under the statutes and regulations that govern the power plant siting process. Considering that the project can only commence with acceptable financing, placing an abbreviated timeframe to begin construction unnecessarily complicates Project Owner's efforts to find a source of capital funding to both decommission Units 3 and 4 and build the new, more efficient, units at the project site. This is of concern because, as staff notes in the Combined FSA, the Project Owner does not have a power purchase agreement in place for the energy services of the project.

Second, the condition can be read as requiring Project Owner to demolish Units 3 and 4 as a standalone project in the event that the PTA is approved, but the El Segundo Power Facility Modification (ESPFM) project is not ready to be built. As previously discussed, this is a single project to both demolish Units 3 and 4 and build new, more efficient, units at the Project Site. The demolition of Units 3 and 4 is not a separate project under the Energy Commission's consideration. The capital funding to carry out decommissioning of Units 3 and 4 is only available if there is a viable project to produce and sell electricity going forward. The Energy Commission should not, therefore, require Project Owner to treat the demolition of Units 3 and 4 as an independent project that must go forward by a date certain whether or not the ESPFM is ready to be built. This is particularly true where the proposed conditions create an abbreviated timeframe that could complicate efforts to secure project financing.

Project Owner recognizes the need, however, to ensure that the property is safely and adequately maintained in the event that there is a significant delay between the retirements of Units 3 and 4 and the commencement of construction of the new project. Accordingly, Project Owner proposes that, in the event of a significant delay, Project Owner be required to submit a Delayed Construction Management Plan to maintain the property in a stable manner. Project Owner advocates that CONTINGENCY-2 be rewritten as follows:

CONTINGENCY-2 Should construction of the project not be commenced within one (1) year of the approval of the final DRRP, the Project Owner shall submit a Delayed Construction Management Plan (DCMP) to maintain the property in a stable manner that is compliant with all applicable laws. The DCMP, at a minimum, shall:

- Identify procedures for maintaining Units 3 and 4, including associated structures, retention basins, exhaust stacks and once-through cooling facilities in a stable and idle condition.
- Identify the process for handling industrial water and storm water in conformance with the facility's National Pollutant Discharge Elimination System (NPDES) permits at the site.
- Require reporting relevant information as to the condition of the Units 3 and 4 facilities in each ESPFM Periodic Compliance Report (PCR) until such time as the CPM issues a DRRP Notice to Proceed.

Verification: On or before one (1) year after the final DRRP is approved (or other CPM-approved mutually agreeable date), if no construction has begun at the site, the project owner shall submit a

draft DCMP to the CPM for review and approval and to the city of El Segundo and other interested agencies, for review and comment. DCMP comments are due to the CPM within 60 days after DCMP submittal, (or other CPM-approved date). Following receipt of agency comments, the project owner shall submit a Final DCMP to the CPM for review and approval.

Subtopic: Compliance Conditions of Certification

Sub-topic testimony by: Scott Seipel, NRG Energy Inc.

Between the issuance of the FSA Part A and the Combined FSA, a number of Compliance Conditions of Certification (“COCs”) were modified. Project Owner accepts most of those changes. There are, however, several modifications that are potentially problematic. Project Owner believes that these potential problems can be avoided with minor revisions or deletions.

i. COM-10’s New Language Regarding PTA Amendment Fees Could Cause Future Complications and Should Be Deleted.

COM-10 is a COC that governs any future amendments, staff-approved project modifications, ownership changes, and verification changes to the project. The Legislature recently amended the Warren-Alquist Act to require an amendment fee to be submitted at the time of filing of a Petition to Amend a previously certified project. Staff introduced a change to COM-10 in the Combined FSA to reflect this statutory change. The following language was added:

A project owner is required to submit a five thousand (\$5,000) dollar fee for every Petition to Amend a previously certified facility pursuant to Public Resources Code section 25806(e). If the actual amendment processing costs exceed \$5,000.00, the total Petition to Amend reimbursement fees owed by a project owner will not exceed the maximum filing fee for an AFC.

(Combined FSA, p. 7-21.)

This language, which summarizes the current wording of Section 25806(e) of the Public Resources Code, is unnecessary. By operation of law, the Project Owner is already required to submit an amendment fee for any future Petition To Amend after July 1, 2015. By incorporating this language into a Condition of Certification, the Project Owner’s current obligations under existing law are not altered in any way. However, this is a forward looking Condition of Certification. Future legislative action might alter the statute and its requirements. In that event, the Condition of Certification and the relevant statutory scheme might place conflicting demands on the Project Owner for any future amendments. Project Owner therefore believes that this new language should be removed from COM-10.

ii. COM-11’s Original Ten Day Timeframe For Reporting Complaints to the CPM Should Be Restored.

COM-11 governs the reporting of complaints. Between the issuance of FSA Part A and the Combined FSA, Staff reduced the number of days to report a complaint from 10 days to 5 days. Staff did not provide any reasoning for the reduction. Project Owner notes that in certain instances it may take more than five days to investigate and mitigate a complaint.

Absent a compelling reason for the reduction, Project Owner requests the condition be restored to the original ten (10) day timeframe for reporting complaints to the CPM.

iii. *The Timeframe for Submittal of COM-12's Emergency Response Site Contingency Plan Should Be Restored.*

COM-12 requires Project Owner to develop an Emergency Response Site Contingency Plan. In the FSA Part A, the Plan was required to be submitted at least sixty (60) days prior to the start of commercial operation. In the Combined FSA, the timing was altered to sixty (60) days before the start of construction. Staff provided no reasoning for the change in timeframe. Requiring the Emergency Response Site Contingency Plan prior to construction is redundant as the Project Owner is already obligated, under WORKER SAFETY-1 to prepare a Demolition and Construction Emergency Action Plan as part of the Demolition and Construction Safety and Health Program. Project Owner requests that the original timeframe for submittal, sixty (60) days prior to the start of commercial operation, be restored.

As an additional point, Item 8 of the COC includes language that seems more appropriate for the facility closure plan. Project Owner suggests revising Item 8 to read as follows:

8. The procedures and implementation sequence for the safe and secure shutdown of all non-critical equipment ~~and removal of hazardous materials and waste~~ (see also specific conditions of certification for the technical areas of Public Health, Waste Management, Hazardous Materials Management, and Worker Safety).

iv. *COM-13 Contains Vagueness and Ambiguity That Should be Resolved.*

COM-13 sets out a framework for incident-reporting. It requires Project Owner to notify the CPM of certain incidents within one hour after it is safe and feasible. This wording, and the extremely short timeframe, could unnecessarily create compliance issues. It is easy to envision a scenario in which the Project Owner and the CPM disagree as to when it would have been "safe and feasible" to report an incident. As an additional complication, because the COC requires reporting of incidents that "could result" in certain outcomes, it is possible that it could be "safe and feasible" to report before the Project Owner has become aware that an incident occurred that could have resulted in a particular outcome. Project Owner therefore proposes that the COC be altered to require notification with one day rather than one hour. This additional time will help avoid compliance issues while still assuring prompt incident reporting.

Additionally, the COC contains several vague provisions that should be clarified.

First, the condition requires incident reporting of any incident that results or could result in "reduction in the facility's ability to respond to dispatch (excluding forced outages cause by protective equipment or other typically encountered shutdown events." This language was inserted between the issuance of the FSA Part A and the Combined FSA. It is unclear whether this only applies to catastrophic failures that result in a reduction in the facility's ability to respond or whether it requires reporting of any potential for reduction in dispatchability. Project Owner requests clarification as to when this newly inserted language would apply.

Second, another alteration between the issuance of the FSA Part A and the Combined FSA has muddled the meaning of the provision targeted at incidents with health and safety impacts. Originally, the condition required reporting of incidents that result or could result in “[h]ealth and safety impacts on the surrounding population.” Now the condition requires reporting of incidents that result or could result in “[p]otential health and safety impacts to workers or the surrounding population.” The reporting requirement for any occurrence that COULD result in POTENTIAL health and safety impacts renders the condition so vague as to be meaningless. Project Owner requests clarification as to when this newly inserted language would apply.

Project Owner therefore requests the following changes to COM-13:

COM-13: Incident-Reporting Requirements. Within one (1) ~~hour~~ **day** after it is safe and feasible, the project owner shall notify the CPM or Compliance Office Manager, by telephone and e-mail, of any incident at the power plant or appurtenant facilities that results or could result in any of the following:

1. ~~Catastrophic failure that Rreduction in~~ **Catastrophic failure that Rreduction in** the facility’s ability to respond to dispatch (excluding forced outages cause by protective equipment or other typically encountered shutdown events);
2. ~~Potential H~~ **health and safety impacts to workers or the surrounding population;**

...

Sub-topic: Hazardous Materials Conditions of Certification

Sub-topic testimony by: Scott Seipel, NRG Energy Inc.

HAZ-5 requires the Project Owner to develop a site-specific security plan to address physical site security and hazardous materials storage. The verification requirement mandates that such a plan be presented to the CPM for review and approval “[n]o later than 60 days after the Petition to Amend is approved. . .” (Combined FSA p. 8-118.) Project Owner does not believe it is feasible to develop an appropriate site-specific security plan in that timeframe. A security plan needs input from contractors and other entities to develop. Project Owner, instead, proposes that the timeframe for a security plan that covers all phases of activity be linked to the start of construction at the site. Project Owner proposes altering the verification requirement of HAZ-5 as follows:

Verification: ~~No later than~~ **At least** sixty (60) days **prior to the start of construction** ~~after the Petition to Amend is approved~~, the project owner shall notify the CPM that a site-specific Security Plan is available for review and approval. In the annual compliance report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and that updated certification statements have been appended to the operations security plan. In the annual compliance report, the project owner shall include a statement that the operations security plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

Sub-topic: Revision of AQ-33 Verification Language to Reflect SCAQMD's Method of VOC Testing

Project Owner's Witness on Sub-Topic: Gary Rubenstein, Sierra Research

AQ-33's verification requirement mandates that the project owner submit CEMS records demonstrating that the 2.0 ppmv emission limit for volatile organic compounds (VOC) is averaged over 60 minutes, corrected to 15 percent O₂, dry basis. However, as shown in the South Coast Air Quality Management District's ("SCAQMD") Final Determination of Compliance ("FDOC"), verification of compliance with the 2 ppm VOC limit is done by periodically performing stack compliance testing; a VOC CEMS is neither required nor used for this purpose. (*see* FDOC Conditions D29.10 and D29.11.) The only CEMS requirements in the FDOC are for NO_x and CO (*see* FDOC Conditions D82.6 and D82.7.)

SCAQMD does not have an approved method for monitoring VOC concentrations in a CEM system – and particularly not for the extremely low VOC concentrations required in the permit. Instead, compliance is demonstrated by periodic compliance tests performed using SCAQMD Modified Method 25.3. Accordingly, Project owner requests the following change:

AQ-33 The 2.0 ppmv VOC emission limit is averaged over 60 minutes at 15 percent O₂, dry basis.

Verification: The project owner shall submit ~~CEMS records~~ **test results (see AQ-72 and AQ-73)** demonstrating compliance with this condition as part of the Quarterly Operational Report required in AQ-SC8.

**EL SEGUNDO ENERGY CENTER PETITION TO AMEND PROCEEDING
WRITTEN TESTIMONY WITNESS DECLARATIONS AND RESUMES**

**DECLARATION OF
Gary Rubenstein**

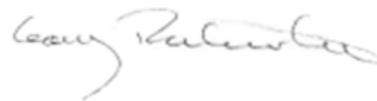
El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, Gary Rubenstein, declare as follows:

1. I am presently employed as Senior Partner by Sierra Research under contract with El Segundo Energy Center, LLC (“Project Owner”) to provide consulting services for the El Segundo Energy Center’s (“ESEC”) Petition to Amend (“PTA”).
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. My testimony in the areas of Air Quality and Clutch Technology, is based on my independent analysis of the Petition to Amend, Project Owner’s Data Responses, the Final Staff Assessment Part A, the Combined Final Staff Assessment, data from reliable documents and sources, and my professional experience and knowledge.
4. I attest to the accuracy of my testimony, and support its conclusions, findings and recommendations hereto.
5. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.
6. I am personally familiar with the facts and conclusions related in the testimony and, if called as a witness, could testify competently thereto

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015



Gary Rubenstein



**sierra
research**

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Sacramento, CA 95811
Tel: (916) 444-6666
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Ann Arbor, MI
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Résumé

Gary S. Rubenstein

Education

1973, B.S., Engineering, California Institute of Technology

Professional Experience

8/81 to present Senior Partner
 Sierra Research

As one of the founding partners of Sierra Research, responsibilities include project management and technical and strategy analysis in all aspects of air quality planning and strategy development; project licensing and impact analysis; emission control system design and evaluation; rulemaking development and analysis; vehicle inspection and maintenance program design and analysis; and automotive emission control design, from the initial design of control systems to the development of methods to assess their performance in customer service. As the Partner principally responsible for Sierra Research's activities related to stationary sources, he has supervised the preparation of control technology assessments, environmental impact reports and permit applications for numerous industrial and other development projects.

While with Sierra, Mr. Rubenstein has managed and worked on numerous projects, including preparation of nonattainment plans; preparation and review of emission inventories and control strategies; preparation of the air quality portions of environmental review documents for controversial transportation, energy, mineral industry and landfill projects; preparation of screening health risk assessments and supporting analyses; and the development of air quality mitigation programs. Mr. Rubenstein has managed the preparation of air quality licensing applications for over 16,000 megawatts of generating capacity before the California Energy Commission, and has managed air quality analyses for over 28,000 megawatts of generating capacity in a variety of jurisdictions.

Mr. Rubenstein has presented testimony and served as a technical expert witness before numerous state and local regulatory agencies, including the U.S. Environmental Protection Agency, California State Legislative Committees, the California Air Resources Board, the California Energy Commission, the California Public Utilities Commission, numerous California air pollution control districts, the Connecticut Department of Environmental Protection, the Hawaii Department of Health, and the Alabama Department of Environmental Management. Mr. Rubenstein has also served as

a technical expert on behalf of the California Attorney General and Alaska Department of Law, and has provided expert witness testimony in a variety of administrative and judicial proceedings.

6/79 to 7/81 Deputy Executive Officer
California Air Resources Board

Responsibilities included policy management and oversight of the technical work of ARB divisions employing over 200 professional engineers and specialists; final review of technical reports and correspondence prepared by all ARB divisions prior to publication, covering such diverse areas as motor vehicle emission standards and test procedures, motor vehicle inspection and maintenance, and air pollution control techniques for sources such as oil refineries, power plants, gasoline service stations and dry cleaners; review of program budget and planning efforts of all technical divisions at ARB; policy-level negotiations with officials from other government agencies and private industry regarding technical, legal, and legislative issues before the Board; representing the California Air Resources Board in public meetings and hearings before the California State Legislature, the California Energy Commission, the California Public Utilities Commission, the Environmental Protection Agency, numerous local government agencies, and the news media on a broad range of technical and policy issues; and assisting in the supervision of over 500 full-time employees through the use of standard principles of personnel management and motivation, organization, and problem solving.

7/78 – 7/79 Chief, Energy Project Evaluation Branch
Stationary Source Control Division
California Air Resources Board

Responsibilities included supervision of ten professional engineers and specialists, including the use of personnel management and motivation techniques; preparation of a major overhaul of ARB's industrial source siting policy; conduct of negotiations with local officials and project proponents on requirements and conditions for siting such diverse projects as offshore oil production platforms, coal-fired power plants, marine terminal facilities, and almond-hull burning boilers.

During this period, Mr. Rubenstein was responsible for the successful negotiation of California's first air pollution permit agreements governing a liquefied natural gas terminal, coal-fired power plant, and several offshore oil production facilities.

10/73 to 7/78 Staff Engineer, Vehicle Emissions Control Division
California Air Resources Board

Responsibilities included design and execution of test programs to evaluate the deterioration of emissions on new and low-mileage vehicles; detailed analysis of the

effect of California emission standards on model availability and fuel economy; analysis of proposed federal emission control regulations and California legislation; evaluation of the cost-effectiveness of vehicle emission control strategies; evaluation of vehicle inspection and maintenance programs, and preparation of associated legislation, regulations and budgets; and preparation of detailed legal and technical regulations regarding all aspects of motor vehicle pollution control. Further duties included preparation and presentation of testimony before the California Legislature and the U.S. Environmental Protection Agency; preparation of division and project budgets; and creation and supervision of the Special Projects Section, a small group of highly trained and motivated individuals responsible for policy proposals and support in both technical and administrative areas (May 1976 to July 1978).

Credentials and Memberships

Air & Waste Management Association (Past Chair, Board of Directors, Golden West Section; Member, Board of Directors, Mother Lode Chapter)

American Society of Mechanical Engineers

Qualified Environmental Professional, Institute of Professional Environmental Practice, 1994

**DECLARATION OF
Steve Rose**

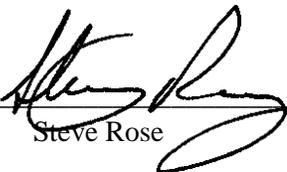
El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, Steve Rose, declare as follows:

1. I am presently employed as Senior Director, Development Engineering by NRG Energy, Inc.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. My testimony in the area of Clutch Technology is based on my professional experience and knowledge in the design and implementation of simple cycle and combined cycle gas turbine generation projects and my independent analysis of the Petition to Amend, Data Responses, the Final Staff Assessment Part A, the Combined Final Staff Assessment, and data from reliable documents and sources.
4. I attest to the accuracy of my testimony, and support its conclusions, findings and recommendations hereto.
5. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.
6. I am personally familiar with the facts and conclusions related in the testimony and, if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015


Steve Rose

Resume of Steven A. Rose

13415 McClurd Ct
Cypress, TX 77429
Mob: 713-854-4971
E-mail: steve.rose@nrg.com

OVERVIEW

Over 38 years experience in engineering, management, project development and project execution worldwide in the power industry with emphasis on simple cycle, combined cycle and cogeneration gas turbine projects ranging up to 2350MW. Experience also includes coal-fired power plants, Rankine plant repowering, renewable energy (utility scale wind, solar and biomass power facilities), mechanical drive packages and heat transfer systems.

BUSINESS EXPERIENCE

- April 2007 – Present **NRG Energy, Inc.**
 Senior Director – Development Engineering
Responsible for development engineering, conceptual engineering and performance engineering in support of new construction and repowering opportunities; evaluation of performance enhancement opportunities for existing plants; and investigation, development and implementation of new and emerging technologies.
- Feb 2006 – April 2007 **ContourGlobal**
 Vice President – Engineering
Overall responsibility for management and direction of technical services in support of ContourGlobal's portfolio of project development, project acquisition and O&M activities.
- Mar 2004 – Feb 2006 **Power Technical Solutions LLC**
 Managing Member
Provided consulting engineering services to a diverse client base representing both wind power developers and owner/operators and conventional fossil power developers and owner/operators. Primary focus was wind power, where my company provided O&M support, equipment remediation services, older wind facility liquidation assistance, and new wind project development and execution services.
- 2002 – Feb 2004 **Enron Wind**
 Director - Development Engineering
Sole engineering/technical resource following Enron Wind's sale of manufacturing and related assets and transfer of support staff to GE Power Systems in May 2002. Provided technical support to asset management group and oversight of third party O&M providers on a broad portfolio of wind power assets comprised of Vestas and Zond turbines ranging from 65kW to 750kW totaling several hundred MW at dozens of sites in the US, Europe and India. Oversaw a diverse group of technical consultants and equipment and service providers focused on problem resolution and asset value enhancement.
- 2000 - 2002 **Enron Americas**
 Director - Development Engineering
Primary technical resource providing support to commercial origination/development teams for development, planning, permitting, negotiation and implementation of merchant power and other projects. Duties included organizing and managing in-house and third party technical support teams, providing general consulting services on technical matters, and supporting commercial teams in developing project financial goals. Specific activities included development of conceptual designs, evaluation of technical alternatives, estimation of project performance, cost and schedule, evaluation

of environmental and project requirements, and due diligence review of projects, acquisitions and other corporate commitments.

1991 - 2000

Enron Engineering and Construction Company

Project Engineering Manager

Responsible for overall management of engineering activities in support of project development, planning and execution.

- Led technical team supporting Enron Europe's development of an 1100MW, 3 x GE 109FA STAG combined cycle gas turbine power plant at Arcos de la Frontera, Spain.
- Directed technical effort on Enron Europe's 790MW, GE 209FA STAG combined cycle gas turbine power project at Sutton Bridge, Lincolnshire, England, from permitting support and initial conceptual design through execution and commercial operation. Managed Enron engineering team and provided oversight of EPC contractor's home office and jobsite engineering staff.
- Led engineering effort from initial project development through completion of detailed engineering on Phase 1 of a 2350MW, 3 x GE 209FA STAG combined cycle gas turbine power plant and LNG receiving/regasification facility at Dabhol, Maharashtra State, India. Directed Owner's Engineer technical team in home office and at EPC contractor's office.
- Led technical teams supporting project development and conceptual design for a 215MW gas turbine combined heat and power project at ICI, Runcorn, England and a 300MW gas turbine combined heat and power project at Brunner Mond, Northwich, Cheshire, England.

Project Engineer

Responsible for organizing and directing engineering staff providing technical support for project development and execution, including:

- 380MW combined cycle gas turbine project, Lawford, England.
- 240MW simple cycle gas turbine project, El Bracho, Argentina
- 140MW combined cycle gas turbine project, Ontario, Canada.
- 150MW combined cycle gas turbine project, Becancour, Quebec, Canada.

Senior Mechanical Engineer

Provided technical support and direction for engineering activities in project development, execution and plant O&M. Served as in-house technical consultant.

- Participated in an 1875MW, 8 x MHI 701DA gas turbine combined heat and power project at Teesside, Middlesbrough, England. Developed and implemented plant noise abatement solutions, directed HAZOP review program, and assisted project team in resolving specific technical issues.

1979 - 1991

Dresser-Rand Turbo Products Division (formerly Dresser-Rand Power, Kongsberg Dresser Power, Kongsberg North America and North American Turbine Corporation)

Senior Systems Engineer

Responsible for all engineering activity in support of the company's line of gas turbine generator and mechanical drive packages in the 1.5 to 40MW range. Developed new and/or improved systems and standardized package designs for aeroderivative and industrial turbomachinery. As Principal Development Engineer, developed new applications for the company's product line including low BTU gas fuel systems, combustion catalyst systems, and biomass and solid fuel systems. Provided technical support to marketing/sales group, including application engineering, project evaluation, cost estimation and sales presentations. Provided technical support to customer service group, including commissioning, machinery diagnosis and revamping. Developed and maintained specialized engineering computer software.

1978 - 1979

Bechtel Power Corporation

Mechanical Engineer

Member of project team engaged in the design and construction of two 550MW coal fired power plants for Gulf States Utilities' (now Entergy's) Roy S. Nelson power station in Westlake, Louisiana. Assigned to the boiler group as Responsible Engineer for the

auxiliary steam, fuel oil, fly ash, bottom ash and waste disposal systems, as well as the cooling towers, field erected tanks, electrostatic precipitators, ash handling system equipment, fuel oil pumps, plant insulation, oil-water separators and emergency diesel generators. Performed various studies concerned with improving plant operating economy and providing an emergency plant fuel system.

1977 - 1978

Bechtel Corporation

Mechanical Engineer

Assigned to the mechanical specialist group of the Refinery and Chemical Division as a heat transfer specialist. Responsibilities included both manual and computer-aided design, rating and selection of various types of shell and tube and air-cooled heat exchangers, as well as computer-aided design of plant thermal insulation systems. Participated in the design of a chlor-alkali/EDC plant, a grass-roots refining complex and a refinery expansion.

EDUCATION

B.S. Mechanical Engineering, University of Texas at Austin, 1977

PATENTS

US 8,943,836 *Combined Cycle Power Plant*

International patents pending

SOFTWARE SKILLS

Thermoflow suite (GT Pro/GT Master/Steam Pro/Steam Master/ReMaster/Thermoflex/PEACE), AutoCAD, GateCycle, Primavera/SureTrak, Microsoft Project, Microsoft Office, numerous engineering, graphics and miscellaneous software products.

**DECLARATION OF
Scott Valentino**

El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, Scott Valentino, declare as follows:

1. I am presently employed as VP Development by NRG Energy, Inc.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. My testimony in the area of Clutch Technology is based on my independent analysis of the Petition to Amend, Project Owner's Data Responses, the Final Staff Assessment Part A, the Combined Final Staff Assessment, data from reliable documents and sources, and my professional experience and knowledge.
4. I attest to the accuracy of my testimony, and support its conclusions, findings and recommendations hereto.
5. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.
6. I am personally familiar with the facts and conclusions related in the testimony and, if called as a witness, could testify competently thereto

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015



Scott Valentino

Scott Valentino

Scott Valentino, currently Vice President, Development for the West Region of NRG Energy, has directly worked in the energy sector for over 10 years. In his current role, Scott oversees development of natural gas power plants within the West Region, including California. Scott has extensive knowledge in the permitting, regulatory, and development sides of the business, including experience with a diverse set of technologies, configurations and OEM providers. Complimentary to his industry specific tenure, Scott also has an extensive background in valuation, risk management and hedging of both energy and commodities.

. Scott joined the region after he led the acquisition of the remaining 50% interest in West Coast Power through the combination of a cash deal and a 50% asset swap in a non-strategic generation asset in Illinois. Since relocating to California in early 2006, Scott led the divestiture of several assets in northern CA, while also playing an integral part in origination deals around the coastal assets in southern CA. He also oversaw the integration of commercial activities at West Coast Power formerly performed by Dynegy to NRG, which included trading and scheduling of both gas and power.

Scott was responsible for negotiating the Power Purchase Agreement with San Diego Gas & Electric for the 500MW Carlsbad Energy Center that was approved by the Public Utilities Commission on July 21, 2005. He also led the negotiations of the Amended Power Purchase Agreement with Southern California Edison in 2010 to support the financing and construction of the El Segundo Energy Center Project (“ESEC”), a 550 MW fast start combined cycle facility in El Segundo, CA. Scott actively participated in negotiations with a consortium of lenders to secure third party financing for the ESEC project which closed in August, 2011. He was also responsible for the pricing and valuation of the Long Beach Peaker repower project that commenced commercial operations in August 2007. Through his development experience in California, Scott has established a thorough understanding of the non-recourse project finance structure and underlying requirements in contractual agreements to raise debt in stressed financial markets.

Prior to joining NRG Energy in 2005, Scott was Vice President of the Energy Group at Stern Stewart & Co where he led the implementation of the Economic Value Added Management System and performed corporate finance advisory services. On one of his projects for an \$18 billion integrated natural gas company, Scott performed and presented a valuation of the company’s power generation business to the Executive Officer Team and the Board of Directors, which resulted in them holding onto the business for successful future profit generation. Scott spent four years living in Brazil with the company doing corporate advisory and M&A, and as a result, is also fluent in Portuguese.

Scott graduated Cum Laude from the Wharton School at the University of Pennsylvania with a Bachelor of Science in Economics and a dual concentration in Finance and Accounting.

**DECLARATION OF
George Piantka**

El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, George Piantka, declare as follows:

1. I am presently employed as Senior Director, Environmental by NRG Energy, Inc.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. My testimony in the area of Contingency Conditions of Certification is based on my independent analysis of the Petition to Amend, Data Responses, the Final Staff Assessment Part A, the Combined Final Staff Assessment, data from reliable documents and sources, and my professional experience and knowledge.
4. I attest to the accuracy of my testimony, and support its conclusions, findings and recommendations hereto.
5. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.
6. I am personally familiar with the facts and conclusions related in the testimony and, if called as a witness, could testify competently thereto

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015


George Piantka

GEORGE L. PIANTKA, PE

SENIOR DIRECTOR, REGULATORY ENVIRONMENTAL SERVICES – WEST

AREAS OF EXPERTISE

- CAA: Title V/ NSR/PSD Permitting and Compliance
- CWA: NPDES Permitting and 316(b) Implementation
- Corporate Environmental Compliance/EMIS
- Corporate Financial Obligations – ARO/CapEx
- RCRA: Assessment, Remediation/Site Closure
- TSCA: PCB Assessment, Remediation
- Due Diligence, Phase I and II Site Assessments
- Water/Wastewater Management and Treatment
- Environmental/Regulatory Policy Strategy/Advocacy
- Community Outreach
- Customer Solutions

REGISTRATION

Registered Civil Engineer:
California, No. C59171
1999

PROFESSIONAL HISTORY

NRG Energy, Inc., West Region, Director, 2009-Present; Regional Manager, 2007-2008

EXPERIENCE OVERVIEW

Mr. George Piantka is Director of Environmental Business for NRG Energy's West Region. Mr. Piantka has 28 years of extensive experience in multi-media permitting, compliance, remediation engineering, and water/wastewater management and treatment in the western United States, primarily in southern and northern California, for the energy, oil & gas, commercial & industrial, Port, and transportation sectors. He has focused extensively on the energy sector since 1997, serving as consultant to independent power producers and publicly owned utility, namely NRG Energy, AES, and Los Angeles Department of Water and Power. In 2007, Mr. Piantka joined NRG Energy as in-house Regional Environmental Manager before his promotion to Regional Director in 2009.

Professional Highlights at NRG:

DEVELOPMENT

Mr. Piantka has led the permitting of new generation in NRG's West Region. Among the Region's accomplishments:

- El Segundo Energy Center Project (ESEC) – project manager for the 2010 approval of the major Petition to Amend whereby NRG modified the 2005 CA Energy Commission (CEC) license by converting the project to a 560 MW, two 1x1 fast-start, air cooled, combined cycle plant. Navigated the West through the SCAQMD permitting moratorium and led, with Governmental Affairs, regulatory and legislative fixes to the permit moratorium that enabled the air district to issue the ESEC Permit to Construct and Operate.
- Carlsbad Energy Center Project (CECP) – project manager for the 2015 approval of the Application for Certification and the amendment of that was filed with the CA Energy Commission for the permitting of a 632 MW plant consisting of six LMS 100 simple cycle units. The project was successfully permitted while faced with intensive intervention and an extensive evidentiary record.
- Long Beach Emergency Repowering – permit manager for the 2007 approval of the refurbishment of the Long Beach Generating Station into a 260 MW simple cycle peaker plant, permitting through the Port of Long Beach and the local air district. This repowering project was permitted and constructed in less than 9 months.

COMPLIANCE

Mr. Piantka is responsible for oversight of the Region's compliance performance, including environmental key performance indicators, Corporate EMIS system, annual audits, Title V and NPDES permit compliance and renewals, and local agency inspections. Mr. Piantka is primary federal and state regulatory agency (EPA, ACOE, SWRCB, State Lands, Coastal Commission) liaison. Mr. Piantka serves as the project manager for the multi-year CA 316(b) implementation (Track 1 replacement with new generation) strategy and implementation of CWA 316(b) for Encina Power Station (867 MGD) and El Segundo Generating Station (400 MGD).

GEORGE L. PIANTKA, PE

SENIOR DIRECTOR, REGULATORY ENVIRONMENTAL SERVICES – WEST

Essentia Management Services LLC, Long Beach, CA. Partner, 2002–2006

URS Corporation, Santa Ana and Santa Barbara, CA. Division Manager to Project Engineer/Manager, 1995–2002

PSI (as former GeoResearch), Long Beach, CA. Project Engineer/Scientist. 1992–1994

ICF Kaiser Engineers, Oakland, San Francisco, and Los Angeles, CA. Staff to Project Manager. 1988-1992

EDUCATION

University of Southern California, Los Angeles, California, M.S. Environmental Engineering, 1993

University of California, Berkeley, Berkeley, California, B.S. Chemistry, 1987

AFFILIATIONS

CA Council for Environmental and Economic Balance, Board Member

Harbor Association of Industry & Commerce (Port of Los Angeles and Long Beach), Board Member

Other compliance responsibilities include:

- Management of the Conditions of Certification for the El Segundo Energy Center CEC license
- Oversight of Region's SPCC Programs
- Remediation lead for RCRA facility assessments, corrective action, and site closures. Closure of Conditionally Authorized wastewater treatment system in progress at one of NRG's West assets.
- Implementation of TSCA reporting, including expedited PCB remediation to meet site development timeline.

CORPORATE FINANCIAL OBLIGATIONS

Mr. Piantka is responsible for the quarterly reporting of Asset Retirement Obligations and liabilities and the development of environmental CapEx for the West Region.

WATER/WASTEWATER MANAGEMENT AND TREATMENT

As Registered Civil Engineer, Mr. Piantka serves as technical manager for Long Beach Generating Station's IMGD wastewater treatment system, including the 2009 NPDES permitting and ongoing engineering enhancements and compliance monitoring.

ENVIRONMENTAL/REGULATORY POLICY STRATEGY/ADVOCACY

Mr. Piantka has served as the point for environmental and regulatory policy/rulemaking tracking, evaluation, comment and response at the local air pollution control districts to state level. Of note, Mr. Piantka worked with South Coast AQMD and elected officials as part of a resolution to challenges to SCAQMD's emission offset (tracking) programs. Mr. Piantka has tracked federal and state 316(b) and climate change/AB 32 policy and regulations. For each, he has evaluated compliance options and associated risks. Mr. Piantka has filed comments and provided testimony directly and through our trade groups. Mr. Piantka, with the Regional Environmental Manager and Governmental Affairs has tracked AB 32/Cap-n-Trade development and pending compliance, Mandatory Reporting, and 3rd party verification. Mr. Piantka serves as a Board Member for the California Council for Environmental and Economic Balance and the Harbor Association for Industry and Commerce – trade groups for environmental, policy, legislative, and economic interests are communicated.

COMMUNITY OUTREACH

Mr. Piantka serves as the point of contact for community outreach in the communities in which El Segundo Generating Station, Long Beach Generating Station and Encina Power Station our location. In this role, Mr. Piantka communicates status of permitting and construction of new generation projects and compliance responsibilities with civic and community interest groups. Mr. Piantka coordinates media communication around these assets and development projects with Corporate Communications. In addition, Mr. Piantka heads the West Regions econrg initiatives and the numerous community and educational programs

conducted in the communities in which the West assets are located.

CUSTOMER SOLUTIONS

Mr. Piantka is a 2011 Leadership Development Program graduate – a program within NRG to promote professional growth and leadership of selected individuals. In that capacity, Mr. Piantka evaluated NRG’s emerging eVgo business line and smart meter applications in coordination with NRG’s retail, marketing and solutions business lines. Mr. Piantka, through existing industry relationships, helped grow customer solutions opportunities with a major entertainment company.

PROFESSIONAL HIGHLIGHTS PRIOR TO NRG:

During Mr. Piantka’s 20 year consulting career, he managed/conducted soil and groundwater investigations, environmental engineering and remediation, compliance and permitting services, and contaminated sediment studies. He has been project manager of numerous Environmental Site Assessments (ESAs), Remedial Investigations, Feasibility Studies, and Corrective Action/Remedial Action programs for public and private sector clients, with particular emphasis on Power and Port facilities. He has designed and managed numerous soil and groundwater remediation programs and has effectively negotiated site closures with regulatory agencies.

Mr. Piantka is particularly adept at managing fast tract, multi-discipline programs typical of development and due diligence projects. Mr. Piantka conducted due diligence investigations at five Southern California power plants formerly owned by Southern California Edison at the onset of deregulation in California. He has served as project manager, contributing technical lead and contributing author on several Applications for Certification filed with the California Energy Commission for Independent Power Producers and Investor Owned generation from 1999 to 2005.

Mr. Piantka's representative project experience includes:

- From 1997 through 2006, Mr. Piantka served as a Project Manager for numerous environmental programs at NRG Energy’s El Segundo and Long Beach Generating Stations in Southern California. Mr. Piantka served as the Compliance Manager for the El Segundo Power Redevelopment Project, including the submittal of compliance documents intended to meet air quality, biology, cultural, geology, hazardous materials, land use, noise, paleontological, water quality, waste management, and worker safety requirements prior to and during the construction of ESEC.

For El Segundo and Long Beach Generating Stations, Mr. Piantka prepared and certified SPCC Plans. Mr. Piantka also updated and certified the SWPPPs for these generating stations.

During 1999 and 2000 for El Segundo Generating Station, Mr. Piantka served as Task Manager for Hazardous Materials and Waste Management sections of the Application for Certification (AFC) for the repower of this power plant in accordance with California Energy Commission. For the AFC, Mr. Piantka served as Project Manager for pre-construction remedial investigations, tank closures, construction dewatering, NPDES permitting and groundwater

GEORGE L. PIANTKA, PE

SENIOR DIRECTOR, REGULATORY ENVIRONMENTAL SERVICES – WEST

treatment. During 1997 and 1998, Mr. Piantka served as Project Manager for Additional Buyer's Due Diligence Investigations, which entailed the evaluation of environmental liabilities at the El Segundo and Long Beach Generating Stations for NRG/Dynegy.

- From 1999 to 2006, Mr. Piantka served as Project Manager for the Resource Conservation and Recovery Act (RCRA) Facility Investigations (RFI) and RCRA Closure Plans of former hazardous waste treatment units and other areas of concern under the direction of the Department of Toxic Substances Control (DTSC) for the AES' Redondo Generating Station in Redondo Beach California. During 1998, Mr. Piantka assisted with the Additional Buyer's Due Diligence Investigation, which entailed the evaluation of environmental liabilities at the Redondo Beach Generating Station for AES Corporation.
- From 1999 to 2006, Mr. Piantka served as a Project Manager on a number of initial site assessments and remedial investigations for Los Angeles Department of Water and Power (LADWP) facilities throughout California. Among the projects, Mr. Piantka conducted extensive assessments of water and sediment quality at two reservoir sites.
- From 1998 to 2000, Mr. Piantka served as Project Manager for the assessment of two Kern County power plant locations within historic oil fields and one western Arizona agricultural site for PG&E National Energy Group. Responsibilities included performing ESAs at a planned power plant site and the associated transmission and pipeline corridors. Project tasks included preparation of Phase I ESAs for the power plant site and proposed property acquisitions along transmission and pipeline corridors located on agricultural and oil field properties.
- From 1995 to 2006, Mr. Piantka has served as a Project Manager for site assessments, remedial action plans, and remedial action at more than 20 Port of Los Angeles sites. Duties included conducting an RI/FS of contaminated sediments at a former ship yard on Terminal Island and evaluating disposal options for metals-impacted sediments. Mr. Piantka also served as Project Manager for environmental tasks associated with the demolition of two contiguous Berths and the management of excavated soil and dredged sediments associated with the construction of a new wharf at a former wood (creosote) treatment plant. He prepared engineering specifications for a sheet pile wall used as a shallow groundwater barrier, designed and installed additional groundwater monitoring wells, and conducted quarterly groundwater monitoring. Mr. Piantka also prepared and implemented a remedial action plan that led to the site closure of a former underground storage tank (UST) site.
- From 2000 to 2004, Mr. Piantka served as Project Manager for the Operation & Maintenance of groundwater and soil remediation systems designed to mitigate volatile organic compounds (VOCs) in soil and groundwater and chromium in groundwater for Goodrich Corporation in Burbank, California and responded to the Cleanup and Abatement Order assigned to this site

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- From 1999 to 2002, Mr. Piantka served as Project Manager for the preparation of responses to Waste Discharge Requirements (WDRs) for process and storm water runoff at the Pictsweet Mushroom Farm located in Ventura, California. As part of the response to the WDRs, Mr. Piantka designed a storm water retention basin intended to achieve zero discharge of storm water and process water at the farm.
- From 1999 to 2000, Mr. Piantka served as the engineer of record for the performance of a Safety Audit; preparation of a Process Safety Manual; and modification of the Risk Management Plan prepared for Venoco's gas process facility in Santa Barbara County, California. The documents were prepared in accordance with Venoco's California Accidental Release Program.
- From 1998 to 2001, Mr. Piantka served as Project Manager for RFI and Closure Assessments at three facilities at Naval Base Ventura County in Port Hueneme, California. He also served as Project Manager for an ESA of a proposed modification of natural drainage and creeks at Naval Base Ventura County, including preparation of the 404 permit for this project.
- During 1998 to 2001, Mr. Piantka managed two UST assessment and remediation projects in Santa Barbara, CA, utilizing SVE, air sparging and insitu bioremediation techniques.
- From 1995 to 1997, Mr. Piantka managed O&M of a soil and groundwater remediation system at a Mobil UST Remediation Site in Long Beach, CA. Responsibilities included quarterly groundwater monitoring and monthly NPDES monitoring. Cleanup objectives were met and closure was granted by the RWQCB.
- From 1995 to 1997, Mr. Piantka managed tank closure and reporting activities at several Yellow Freight facilities in California. Mr. Piantka managed interim corrective action measures at Orange and Gardena, California sites, whereby UST areas were over excavated and confirmation samples collected to confirm that clean-up goals were met.
- From 1996 to 1998, Mr. Piantka served as Project Manager for the RI of a 160,000-gallon fuel release and O&M of the LNAPL and vapor-phase remediation system along a petroleum hydrocarbon pipeline on behalf of ARCO Pipeline in Long Beach, CA. He utilized field techniques to quickly assess the stratigraphy and the extent of dissolved phase aromatic hydrocarbons in multiple saturated zones. Mr. Piantka also managed quarterly groundwater monitoring, sampling and reporting requirements for the site.
- From 1995 to 1998, Mr. Piantka served as Project Manager for subsurface investigations and free-phase removal at bulk fuel storage facility on behalf of ARCO Pipeline at the Port of Long Beach, CA. He designed and implemented

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the upgraded free-phase removal system to incorporate additional recover wells installed as part of site investigation activities. Mr. Piantka also managed quarterly groundwater monitoring, sampling and reporting requirements for the site.

- From 1995 to 2001, Mr. Piantka served as Project Manager for several RIs at Caltrans maintenance stations sites in central and Southern California, including Stockton, Bear Valley, and Glennville. He conducted pilot tests and screening level risk assessments as part of the evaluation of feasible remedial alternatives. Mr. Piantka also presented results to local County Health Departments and RWQCB staff and negotiated site closures, where appropriate.
- From 1995 to 2002, Mr. Piantka served as Project Manager for a 30,000-gallon spill at a service station in Lancaster, California. He managed the California State Reimbursement program and provided litigation support for the pending case against the responsible party. Mr. Piantka also worked with the client's risk management staff to implement cost recovery strategies. Total cost recovery was approximately \$1.5M.
- From 1992 to 1995, Mr. Piantka managed a dozen site assessment and interim removal actions at active and closed service station sites throughout California on behalf of Unocal. At some of the sites, SVE tests were conducted and FSS prepared to evaluate remedial alternatives. Mr. Piantka also managed the UST Reimbursement programs for Unocal, which entailed the preparation and submittal of reimbursement applications for approximately 250 service station sites in California and Arizona.
- From 1990 to 1992, Mr. Piantka conducted site assessments and remediation pilot testing, and prepared RCRA closure reports for several operable units at a defense contractor facility for United Technologies, San Jose, California.
- From 1988 to 1992, Mr. Piantka managed tank removal/closure activities and conducted site assessments at several Ford Motor Company facilities in California, Oregon and Washington.
- From 1988 to 1992, Mr. Piantka managed tank removal/closure activities and conducted site assessments at active and closed United States Postal Service sites in Southern and Northern California.
- From 1988 to 1991, Mr. Piantka conducted groundwater monitoring and RIs to assess the extent of diesel- and gasoline-impacted soil and groundwater, on behalf of AC Transit, Alameda and Contra Costa Counties.
- From 1988 to 1992, Mr. Piantka has served as technical lead of Hazardous Materials and Wastes Assessments for proposed transportation improvement projects in Honolulu, HI; Oakland, CA; Sacramento, CA; and San Diego, CA.

**DECLARATION OF
SCOTT SEIPEL**

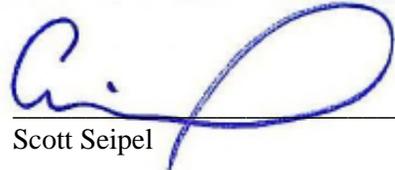
El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, Scott Seipel, declare as follows:

1. I am presently employed as an Environmental Manager by NRG Energy, Inc.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. My testimony in the areas of Compliance Conditions of Certification and Hazardous Materials Conditions of Certification, is based on my independent analysis of the Petition to Amend, Data Responses, the Final Staff Assessment Part A, the Combined Final Staff Assessment, data from reliable documents and sources, and my professional experience and knowledge.
4. I attest to the accuracy of my testimony, and support its conclusions, findings and recommendations hereto.
5. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.
6. I am personally familiar with the facts and conclusions related in the testimony and, if called as a witness, could testify competently thereto

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015



Scott Seipel

Christopher "Scott" Seipel, P.G., C.HG.

Environmental Manager, West Region, NRG Energy Inc.

Contact Information

Phone 909-648-5008

E-mail: scott.seipel@nrg.com

Employment Experience

2015 to Present: Environmental Manager, West Region, NRG Energy Inc., Rancho Cucamonga, California

2007 to 2015: Principal hydrogeologist for The Source Group, Inc., Signal Hill, California.

2000 to 2007: Western regional utility sector client manager, Shaw Environmental, Inc., Irvine, California.

1997 to 2000: Staff geologist/field technician, GeoLogic Associates, San Bernardino, California.

1995 to 1997: Field technician/geologist and materials laboratory technician, RMA Group, Rancho Cucamonga, California.

Education

BS, Geology, California State University at San Bernardino, 1995

Registrations/Certifications

Certified Hydrogeologist: 2005, California, No. 823, expires 12/2015

Professional Geologist: 2001, California, No. 7353, expires 12/2015

Additional Training

Radiation Safety Certified: 1996, California, no expiration date

Certified 24-hour Storm Water Pollution Prevention Plan Workshop 2006

Certified Industrial Storm Water Monitoring & Sampling 2009

Qualified Storm Water Developer (QSD) 2012

40-Hour Occupational Safety and Health Administration (OSHA), Hazardous Waste and Emergency Response (HAZWOPER) Training (refresher 2014)

OSHA 10-Hour Construction Safety and Health; 2004

OSHA 8-Hour Management/Supervisory Training; 2004

Professional Qualifications

Permitting and Land Development

Mr. Seipel is a California Professional Geologist (PG) and Certified Hydrogeologist (CHG) with fifteen years of environmental geology experience. He has managed a broad variety environmental projects including developing compliance and environmental training programs, quality assurance/quality control programs, and managing regulatory permitting projects. Mr. Seipel has managed the development of permit technical sections for 850 megawatts (MWs) of simple-cycle, and 1000 MWs combined-cycle, power plants. Mr. Seipel has managed applications for, and administration of, Environmental Protection Agency (EPA) National Pollution Discharge

Elimination System (NPDES) permits. Mr. Seipel has managed the permitting process for industrial, general, and storm water NPDES permits.

Field Construction

Mr. Seipel's experience includes field construction and demolition management, construction permit training, and compliance coordination. Construction projects include power plant demolition and construction, and landfill lining and closure.

Environmental Investigation and Remediation

Remediation experience includes scoping investigations, mitigation and remediation of sites impacted by petroleum hydrocarbons, polycyclic aromatic hydrocarbons, volatile organic compounds, chlorinated compounds, and heavy metals. Mr. Seipel has developed and managed operations and installation and refurbishing of large groundwater and vapor extraction, air sparging, and bioventing remediation systems. As part of the reporting requirements for several current project sites, Mr. Seipel regularly interacts with representatives of the California Energy Commission, Los Angeles Region Water Quality Control Board, and the California Department of Toxic Substances Control (DTSC), as well as various local city and county representatives. Mr. Seipel's site investigation and monitoring experience includes groundwater monitoring for hydraulic, chemistry and intrinsic biological parameters, and compliance monitoring and contamination plume modeling and reporting. Mr. Seipel has also successfully managed voluntary cleanup projects, human and ecological risk assessments, and obtained no further action letters from the DTSC.

Law Firm Support and Expert Witness

Mr. Seipel has assisted a Southern California law firm and city engineering department negotiate and resolve environmental land development issues including groundwater monitoring, remediation, well abandonment and relocation. He has assisted private companies in determining real-estate sale values associated with environmentally impacted sites. He has also provided expert witness testimony concerning the Phase I Environmental Site Assessment (ASTM E1527 - 13) process, and hazardous waste disposition.

Representative Experience and Background

2007 - 2015 as a Professional Geologist and Certified Hydrogeologist for The Source Group, Inc., Signal Hill, California:

Remediation Manager and Project Coordinator, Power Company, El Segundo, California

- Environmental coordinator during demolition and construction of the El Segundo Energy Center Redevelopment project (2010 to 2014).
- Prepare quarterly and annual regulatory compliance report for submission to the California Energy Commission.
- Develop contractor site training program.
- Manage Biological, Cultural, Paleontological, Storm Water Compliance, Noise, and Air Emissions monitoring contractors.
- Manage NPDES permit applications for industrial discharge, construction storm water discharge, hydro-test wastewater discharge, and construction dewatering discharge.

- Professional Geologist as Remedial Manager approved by California Energy Commission for power plant redevelopment.
- Field management of PCB cleanup under EPA TSCA Regional Administrator Oversight.
- Manage Hazardous Waste disposal during demolition, remediation, and construction.
- Support South Coast Air Quality Management District permit monitoring of visual emissions.
- Setup environmental management system (Intelex) reporting for a California Energy Commission licensed project and EPA Title V air permit.
- Prepare quarterly and annual California Energy Commission reports.

Remediation Manager, Power Company, Carlsbad, California

- Onsite compliance manager coordinating demolition contractor compliance activities.
- Provide expert witness testimony for compliance reporting.
- Coordinate communication with the City of Carlsbad.
- Prepare and submit monthly compliance reports to the California Energy Commission compliance manager.
- Technical reviewer for petition to amend California Energy Commission license and related documents.
- Support legal and management teams, and facilitate communication and coordination among consultant teams, involved in application for amendment of California Energy Commission certification, and coordinate revisions to related permits from other government agencies.
- Prepare NPDES permit.

Project Coordinator, Power Company, Long Beach, California

- Manage soil investigation of gas compressor lube oil system.
- Provide oversight of contractors for Gerald Desmond Bridge demolition and dewatering well installation project.
- Conduct ammonia treatment feasibility study.
- Manage on-going groundwater oil recovery efforts and reporting.

Technical Expert, Power Company, Ventura, California

- Support NPDES permit renewal application.
- Technical advisor for California Energy Commission, Application for Certification.

Project Manager, TSDf RCRA Program, Compton, California.

- Manage development of RCRA work plans, implementation of site assessment, and DTSC coordination.
- Manage soil gas investigations, quarterly and annual groundwater monitoring reporting, off-site assessments of soil gas and groundwater.
- Develop groundwater plume capture modeling.

Technical Lead, Federal Fuel Support Client, San Pedro, California

- Manage NPDES permitting and compliance, program for tank farm and fuel pier.
- Managed preparation of Industrial Storm Water Pollution Prevention Plan (SWPPP) at a major fuel depot and marine terminal.
- Manage multi-media compliance project.

Project Manager, Refinery, Wilmington, California

- Manage NPDES permitting for above ground tank farm.
- Los Angeles County Sanitation District Reporting.
- Annual Stormwater Reporting.
- Evaluate industrial SWPPPs for refinery and tank farm facilities.

Project Manager, Aerospace Parts Manufacturer, Long Beach, California

- Assist with asset sale agreement on behalf of property owner.
- Manage assessment and groundwater monitoring of PCE, TCE plume under Los Angeles Regional Water Quality Control Board Corrective Action Order.

Technical Lead, Port Facility, Los Angeles, California

- Aquifer test, sanitary sewer permitting and NPDES permitting for dewater project. Project located within the Harbor District of Los Angeles, California.

Project Manager, Law Firm, San Bernardino, California

- Provide expert witness testimony related to ASTM – E-1527 -05 Phase I standard protocol procedures.
- Provide expert witness testimony related to hazardous waste characterization procedures.

2000 – 2007: P.G., C.HG., Shaw Environmental, Inc., Irvine, California:

Project Manager, Power Company, Carlsbad, California

- Prepare EPA RULE 316(b) Proposal for Information Collection report. Coordinate Shaw's 316(b) resources and NRG marine biology consultants for preparation of power plant compliance report and fish sampling plan for submittal to RWQCB. 316(b) compliance for reduction in impingement and entrainment of fish and larval fish.
- Manage the preparation and submittal of Flood Plain Special Use Permit with the City of Carlsbad for dredging operations.
- Assisted with Reasonable Potential Analysis (RPA) for the elimination of monitoring parameters from NPDES permit. (Approved by State.)

Project Coordinator, Power Company, El Segundo, California

- Coordinate California Energy Commission (CEC) Petition To Amend for approved Application for Certification (AFC) permit.
- Professional Geologist as Remedial Manager for power plant redevelopment
- Developed site wide Remedial Investigation compliant with DTSC Corrective Action Consent Agreement requirements.
- Developed Soils Management Plan (SMP) compliant with DTSC guidance.
- Environmental Protection Agency (EPA) RULE 316(b) Proposal for Information Collection report. Coordinate Shaw's 316(b) resources and marine biology consultants for preparation of power plant compliance report and fish sampling plan for submittal to Regional Water Quality Control Board (RWQCB). 316(b) compliance for reduction in impingement and entrainment of fish and larval fish.

Project Coordinator, Power Company, Long Beach, California

- NPDES renewal application (Individual Permit) submittal and approval, dewatering study, and combined soil and groundwater treatment feasibility study.
- NPDES permit application (General Permit) (Approved)
- Supported Harbor Development Permit applications for geotechnical, power plant refurbishment (250 MW).
- Prepared California Accidental Release Program (CalARP) Program 1 Risk Management Plan (RMP) for aqueous ammonia system (agency approved).
- Developed Soils Management Plan (SMP) compliant with DTSC guidance.

Project Manager, Slauson-Central Retail Plaza, Los Angeles, California, for the Community Redevelopment Agency

- Prepared final Preliminary Endangerment Assessment (PEA) work plan preparation and response to comments from DTSC.
- Managed site investigation.
- TPH, Metals, and VOC impacted site.

Project Manager, Law Firm, San Bernardino, California.

- File for Voluntary Cleanup Agreement with DTSC, prepare site characterization work plan, conduct site investigation. Former metals foundry with metals, Poly Chlorinated Biphenyls (PCBs), and Polycyclic Aromatic Hydrocarbons (PAH) contamination in soil.
- Managed Risk Assessment, Received NFA 2007.
- Developed Soil Management Plan compliant with DTSC guidance. (Received DTSC approval.)

Project Manager, Law Firm, San Bernardino, California.

- Provide testimony related to ASTM – E-1527 -05 Phase I and II standard protocol procedures.

Senior Task Manager, Department of Defense, Bridgeport, California.

- **2001 to 2005.** Semiannual reporting of quarterly groundwater monitoring.
- Various site closure reports.
- Responsible for optimization of existing remediation systems, evaluated, selection, and deployed of alternative remediation techniques.
- Received closure on various sites: diesel, gasoline, and un-permitted landfill impacted sites.

Senior Task Manager, Solvent Recovery Refinery, Azusa, California.

- **2003 to 2004.** Responsible for fieldwork oversight during groundwater and soil vapor sampling. Responsible for logging and installation of deep FLUTe® wells on site. Volatile organic compounds (VOCs), and perchlorate impacted site.

Project Manager, Newport Avenue and Irvine Boulevard Intersection Enhancement Project, Tustin, California.

- **2003 to 2005.** Conducting oversight for the City of Tustin for environmental issues related to street and utility realignment near former gas station and petroleum pipeline release site. Jet fuel, gasoline, and VOC impacted sites.

Senior Task Manager, Federal Fuel Support Client, Norwalk, California.

- **2000 to 2003.** Tank farm quarterly and semiannual groundwater sampling and report preparation. Manage remediation system operation and maintenance, NPDES permitting and compliance, Air Quality Management District (AQMD) permit compliance. Attend Restoration Advisory Board (RAB) meetings. Correspond with Los Angeles RWQCB and Santa Ana RWQCB. Jet Fuel, Gasoline, Diesel, PAH impacted site.

Project Manager, Electric Utility Company, Former Wood Treatment Site, Alhambra, California,

- Managed sampling effort for soil removal action. Responsible for site investigation and field coordination following remedial action plan (RAP) work plan. Assisted in report preparation of draft RAP. Correspond with DTSC. PAH and VOC impacted site.

Project Manager, Electric Utility Company Manufactured Gas Plant Site, Colton, California.

- Responsible for site investigation activities under remedial action work plan (RAW), with supervision from California EPA, and DTSC. PAH impacted site.

**EL SEGUNDO ENERGY CENTER PETITION TO AMEND PROCEEDING
DOCUMENT SPONSORING DECLARATIONS AND RESUMES**

**DECLARATION OF
GEORGE PIANTKA**

El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, George Piantka, declare as follows:

1. I am presently employed as Senior Director, Environment by NRG Energy, Inc. I am responsible for permitting and compliance for NRG's power plants in California, including the permitting of new natural gas-fired plants. I also have responsibility for ensuring that NRG's fleet of existing power plants achieves compliance with existing and emerging environmental rules and regulations. My responsibilities include compliance by the existing El Segundo Generating Station and the new El Segundo Energy Center located in El Segundo, California ("El Segundo"). El Segundo is owned by El Segundo Power, LLC ("Cabrillo Power"), which is an indirect wholly-owned subsidiary of NRG and an affiliate of El Segundo Energy Center LLC ("ESEC LLC").

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I caused to be prepared or prepared information related to **Executive Summary and Project Description** in support of the PTA for ESEC. Such information was either provided by me to consultants for incorporation of such data into documents or based on my independent analysis of data from reliable documents and sources, as well as my professional experience and knowledge. Specifically, I prepared or caused to be prepared the following:

| DOCUMENT | Date Docketed | Transaction Number |
|--|----------------------|---------------------------|
| El Segundo Energy Center Petition to Amend, Secs. 1 and 2 and related Appendices | 4/23/2013 | TN-70442 |
| Applicant's Responses to Data Requests in Set One (#1-83) (Project Description and Alternatives Analysis portions) | 9/12/2013 | TN-200464 |
| Applicant's Responses to Data Requests in Set Two (#84-90) | 9/19/2013 | TN-200532 |
| Applicant's Response to Data Request 87 of Data Request Set Two (Waste Management portion) | 10/30/2013 | TN-201082 |

| DOCUMENT | Date Docketed | Transaction Number |
|--|----------------------|---------------------------|
| Applicant's Responses to Data Requests in Set Three (#91-92) | 10/31/2013 | TN-201092 |
| Supplemental Data Related to Data Request Set 3 (Nos. 91 and 92) | 2/28/2014 | TN-201814 |

4. It is my professional opinion that the information provided to the California Energy Commission related to the ESEC PTA proceeding is valid and accurate with respect to the issues addressed herein.

5. I am personally familiar with the sponsored documents, and if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015



George Piantka

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AREAS OF EXPERTISE

- CAA: Title V/ NSR/PSD Permitting and Compliance
- CWA: NPDES Permitting and 316(b) Implementation
- Corporate Environmental Compliance/EMIS
- Corporate Financial Obligations – ARO/CapEx
- RCRA: Assessment, Remediation/Site Closure
- TSCA: PCB Assessment, Remediation
- Due Diligence, Phase I and II Site Assessments
- Water/Wastewater Management and Treatment
- Environmental/Regulatory Policy Strategy/Advocacy
- Community Outreach
- Customer Solutions

REGISTRATION

Registered Civil Engineer:
California, No. C59171
1999

PROFESSIONAL HISTORY

NRG Energy, Inc., West Region, Director, 2009-Present; Regional Manager, 2007-2008

EXPERIENCE OVERVIEW

Mr. George Piantka is Director of Environmental Business for NRG Energy's West Region. Mr. Piantka has 28 years of extensive experience in multi-media permitting, compliance, remediation engineering, and water/wastewater management and treatment in the western United States, primarily in southern and northern California, for the energy, oil & gas, commercial & industrial, Port, and transportation sectors. He has focused extensively on the energy sector since 1997, serving as consultant to independent power producers and publicly owned utility, namely NRG Energy, AES, and Los Angeles Department of Water and Power. In 2007, Mr. Piantka joined NRG Energy as in-house Regional Environmental Manager before his promotion to Regional Director in 2009.

Professional Highlights at NRG:

DEVELOPMENT

Mr. Piantka has led the permitting of new generation in NRG's West Region. Among the Region's accomplishments:

- El Segundo Energy Center Project (ESEC) – project manager for the 2010 approval of the major Petition to Amend whereby NRG modified the 2005 CA Energy Commission (CEC) license by converting the project to a 560 MW, two 1x1 fast-start, air cooled, combined cycle plant. Navigated the West through the SCAQMD permitting moratorium and led, with Governmental Affairs, regulatory and legislative fixes to the permit moratorium that enabled the air district to issue the ESEC Permit to Construct and Operate.
- Carlsbad Energy Center Project (CECP) – project manager for the 2015 approval of the Application for Certification and the amendment of that was filed with the CA Energy Commission for the permitting of a 632 MW plant consisting of six LMS 100 simple cycle units. The project was successfully permitted while faced with intensive intervention and an extensive evidentiary record.
- Long Beach Emergency Repowering – permit manager for the 2007 approval of the refurbishment of the Long Beach Generating Station into a 260 MW simple cycle peaker plant, permitting through the Port of Long Beach and the local air district. This repowering project was permitted and constructed in less than 9 months.

COMPLIANCE

Mr. Piantka is responsible for oversight of the Region's compliance performance, including environmental key performance indicators, Corporate EMIS system, annual audits, Title V and NPDES permit compliance and renewals, and local agency inspections. Mr. Piantka is primary federal and state regulatory agency (EPA, ACOE, SWRCB, State Lands, Coastal Commission) liaison. Mr. Piantka serves as the project manager for the multi-year CA 316(b) implementation (Track 1 replacement with new generation) strategy and implementation of CWA 316(b) for Encina Power Station (867 MGD) and El Segundo Generating Station (400 MGD).

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Essentia Management Services LLC, Long Beach, CA. Partner, 2002–2006

URS Corporation, Santa Ana and Santa Barbara, CA. Division Manager to Project Engineer/Manager, 1995–2002

PSI (as former GeoResearch), Long Beach, CA. Project Engineer/Scientist. 1992–1994

ICF Kaiser Engineers, Oakland, San Francisco, and Los Angeles, CA. Staff to Project Manager. 1988-1992

EDUCATION

University of Southern California, Los Angeles, California, M.S. Environmental Engineering, 1993

University of California, Berkeley, Berkeley, California, B.S. Chemistry, 1987

AFFILIATIONS

CA Council for Environmental and Economic Balance, Board Member

Harbor Association of Industry & Commerce (Port of Los Angeles and Long Beach), Board Member

Other compliance responsibilities include:

- Management of the Conditions of Certification for the El Segundo Energy Center CEC license
- Oversight of Region’s SPCC Programs
- Remediation lead for RCRA facility assessments, corrective action, and site closures. Closure of Conditionally Authorized wastewater treatment system in progress at one of NRG’s West assets.
- Implementation of TSCA reporting, including expedited PCB remediation to meet site development timeline.

CORPORATE FINANCIAL OBLIGATIONS

Mr. Piantka is responsible for the quarterly reporting of Asset Retirement Obligations and liabilities and the development of environmental CapEx for the West Region.

WATER/WASTEWATER MANAGEMENT AND TREATMENT

As Registered Civil Engineer, Mr. Piantka serves as technical manager for Long Beach Generating Station’s IMGD wastewater treatment system, including the 2009 NPDES permitting and ongoing engineering enhancements and compliance monitoring.

ENVIRONMENTAL/REGULATORY POLICY STRATEGY/ADVOCACY

Mr. Piantka is has served as the point for environmental and regulatory policy/rulemaking tracking, evaluation, comment and response at the local air pollution control districts to state level. Of note, Mr. Piantka worked with South Coast AQMD and elected officials as part of a resolution to challenges to SCAQMD’s emission offset (tracking) programs. Mr. Piantka has tracked federal and state 316(b) and climate change/AB 32 policy and regulations. For each, he has evaluated compliance options and associated risks. Mr. Piantka has filed comments and provided testimony directly and through our trade groups. Mr. Piantka, with the Regional Environmental Manager and Governmental Affairs has tracked AB 32/Cap-n-Trade development and pending compliance, Mandatory Reporting, and 3rd party verification. Mr. Piantka serves as a Board Member for the California Council for Environmental and Economic Balance and the Harbor Association for Industry and Commerce – trade groups for environmental, policy, legislative, and economic interests are communicated.

COMMUNITY OUTREACH

Mr. Piantka serves as the point of contact for community outreach in the communities in which El Segundo Generating Station, Long Beach Generating Station and Encina Power Station our location. In this role, Mr. Piantka communicates status of permitting and construction of new generation projects and compliance responsibilities with civic and community interest groups. Mr. Piantka coordinates media communication around these assets and development projects with Corporate Communications. In addition, Mr. Piantka heads the West Regions econrg initiatives and the numerous community and educational programs

conducted in the communities in which the West assets are located.

CUSTOMER SOLUTIONS

Mr. Piantka is a 2011 Leadership Development Program graduate – a program within NRG to promote professional growth and leadership of selected individuals. In that capacity, Mr. Piantka evaluated NRG’s emerging eVgo business line and smart meter applications in coordination with NRG’s retail, marketing and solutions business lines. Mr. Piantka, through existing industry relationships, helped grow customer solutions opportunities with a major entertainment company.

PROFESSIONAL HIGHLIGHTS PRIOR TO NRG:

During Mr. Piantka’s 20 year consulting career, he managed/conducted soil and groundwater investigations, environmental engineering and remediation, compliance and permitting services, and contaminated sediment studies. He has been project manager of numerous Environmental Site Assessments (ESAs), Remedial Investigations, Feasibility Studies, and Corrective Action/Remedial Action programs for public and private sector clients, with particular emphasis on Power and Port facilities. He has designed and managed numerous soil and groundwater remediation programs and has effectively negotiated site closures with regulatory agencies.

Mr. Piantka is particularly adept at managing fast tract, multi-discipline programs typical of development and due diligence projects. Mr. Piantka conducted due diligence investigations at five Southern California power plants formerly owned by Southern California Edison at the onset of deregulation in California. He has served as project manager, contributing technical lead and contributing author on several Applications for Certification filed with the California Energy Commission for Independent Power Producers and Investor Owned generation from 1999 to 2005.

Mr. Piantka's representative project experience includes:

- From 1997 through 2006, Mr. Piantka served as a Project Manager for numerous environmental programs at NRG Energy’s El Segundo and Long Beach Generating Stations in Southern California. Mr. Piantka served as the Compliance Manager for the El Segundo Power Redevelopment Project, including the submittal of compliance documents intended to meet air quality, biology, cultural, geology, hazardous materials, land use, noise, paleontological, water quality, waste management, and worker safety requirements prior to and during the construction of ESEC.

For El Segundo and Long Beach Generating Stations, Mr. Piantka prepared and certified SPCC Plans. Mr. Piantka also updated and certified the SWPPPs for these generating stations.

During 1999 and 2000 for El Segundo Generating Station, Mr. Piantka served as Task Manager for Hazardous Materials and Waste Management sections of the Application for Certification (AFC) for the repower of this power plant in accordance with California Energy Commission. For the AFC, Mr. Piantka served as Project Manager for pre-construction remedial investigations, tank closures, construction dewatering, NPDES permitting and groundwater

GEORGE L. PIANTKA, PE

SENIOR DIRECTOR, REGULATORY ENVIRONMENTAL SERVICES – WEST

treatment. During 1997 and 1998, Mr. Piantka served as Project Manager for Additional Buyer's Due Diligence Investigations, which entailed the evaluation of environmental liabilities at the El Segundo and Long Beach Generating Stations for NRG/Dynegy.

- From 1999 to 2006, Mr. Piantka served as Project Manager for the Resource Conservation and Recovery Act (RCRA) Facility Investigations (RFI) and RCRA Closure Plans of former hazardous waste treatment units and other areas of concern under the direction of the Department of Toxic Substances Control (DTSC) for the AES' Redondo Generating Station in Redondo Beach California. During 1998, Mr. Piantka assisted with the Additional Buyer's Due Diligence Investigation, which entailed the evaluation of environmental liabilities at the Redondo Beach Generating Station for AES Corporation.
- From 1999 to 2006, Mr. Piantka served as a Project Manager on a number of initial site assessments and remedial investigations for Los Angeles Department of Water and Power (LADWP) facilities throughout California. Among the projects, Mr. Piantka conducted extensive assessments of water and sediment quality at two reservoir sites.
- From 1998 to 2000, Mr. Piantka served as Project Manager for the assessment of two Kern County power plant locations within historic oil fields and one western Arizona agricultural site for PG&E National Energy Group. Responsibilities included performing ESAs at a planned power plant site and the associated transmission and pipeline corridors. Project tasks included preparation of Phase I ESAs for the power plant site and proposed property acquisitions along transmission and pipeline corridors located on agricultural and oil field properties.
- From 1995 to 2006, Mr. Piantka has served as a Project Manager for site assessments, remedial action plans, and remedial action at more than 20 Port of Los Angeles sites. Duties included conducting an RI/FS of contaminated sediments at a former ship yard on Terminal Island and evaluating disposal options for metals-impacted sediments. Mr. Piantka also served as Project Manager for environmental tasks associated with the demolition of two contiguous Berths and the management of excavated soil and dredged sediments associated with the construction of a new wharf at a former wood (creosote) treatment plant. He prepared engineering specifications for a sheet pile wall used as a shallow groundwater barrier, designed and installed additional groundwater monitoring wells, and conducted quarterly groundwater monitoring. Mr. Piantka also prepared and implemented a remedial action plan that led to the site closure of a former underground storage tank (UST) site.
- From 2000 to 2004, Mr. Piantka served as Project Manager for the Operation & Maintenance of groundwater and soil remediation systems designed to mitigate volatile organic compounds (VOCs) in soil and groundwater and chromium in groundwater for Goodrich Corporation in Burbank, California and responded to the Cleanup and Abatement Order assigned to this site

GEORGE L. PIANTKA, PE

SENIOR DIRECTOR, REGULATORY ENVIRONMENTAL SERVICES – WEST

- From 1999 to 2002, Mr. Piantka served as Project Manager for the preparation of responses to Waste Discharge Requirements (WDRs) for process and storm water runoff at the Pictsweet Mushroom Farm located in Ventura, California. As part of the response to the WDRs, Mr. Piantka designed a storm water retention basin intended to achieve zero discharge of storm water and process water at the farm.
- From 1999 to 2000, Mr. Piantka served as the engineer of record for the performance of a Safety Audit; preparation of a Process Safety Manual; and modification of the Risk Management Plan prepared for Venoco's gas process facility in Santa Barbara County, California. The documents were prepared in accordance with Venoco's California Accidental Release Program.
- From 1998 to 2001, Mr. Piantka served as Project Manager for RFI and Closure Assessments at three facilities at Naval Base Ventura County in Port Hueneme, California. He also served as Project Manager for an ESA of a proposed modification of natural drainage and creeks at Naval Base Ventura County, including preparation of the 404 permit for this project.
- During 1998 to 2001, Mr. Piantka managed two UST assessment and remediation projects in Santa Barbara, CA, utilizing SVE, air sparging and insitu bioremediation techniques.
- From 1995 to 1997, Mr. Piantka managed O&M of a soil and groundwater remediation system at a Mobil UST Remediation Site in Long Beach, CA. Responsibilities included quarterly groundwater monitoring and monthly NPDES monitoring. Cleanup objectives were met and closure was granted by the RWQCB.
- From 1995 to 1997, Mr. Piantka managed tank closure and reporting activities at several Yellow Freight facilities in California. Mr. Piantka managed interim corrective action measures at Orange and Gardena, California sites, whereby UST areas were over excavated and confirmation samples collected to confirm that clean-up goals were met.
- From 1996 to 1998, Mr. Piantka served as Project Manager for the RI of a 160,000-gallon fuel release and O&M of the LNAPL and vapor-phase remediation system along a petroleum hydrocarbon pipeline on behalf of ARCO Pipeline in Long Beach, CA. He utilized field techniques to quickly assess the stratigraphy and the extent of dissolved phase aromatic hydrocarbons in multiple saturated zones. Mr. Piantka also managed quarterly groundwater monitoring, sampling and reporting requirements for the site.
- From 1995 to 1998, Mr. Piantka served as Project Manager for subsurface investigations and free-phase removal at bulk fuel storage facility on behalf of ARCO Pipeline at the Port of Long Beach, CA. He designed and implemented

GEORGE L. PIANTKA, PE

SENIOR DIRECTOR, REGULATORY ENVIRONMENTAL SERVICES – WEST

the upgraded free-phase removal system to incorporate additional recover wells installed as part of site investigation activities. Mr. Piantka also managed quarterly groundwater monitoring, sampling and reporting requirements for the site.

- From 1995 to 2001, Mr. Piantka served as Project Manager for several RIs at Caltrans maintenance stations sites in central and Southern California, including Stockton, Bear Valley, and Glennville. He conducted pilot tests and screening level risk assessments as part of the evaluation of feasible remedial alternatives. Mr. Piantka also presented results to local County Health Departments and RWQCB staff and negotiated site closures, where appropriate.
- From 1995 to 2002, Mr. Piantka served as Project Manager for a 30,000-gallon spill at a service station in Lancaster, California. He managed the California State Reimbursement program and provided litigation support for the pending case against the responsible party. Mr. Piantka also worked with the client's risk management staff to implement cost recovery strategies. Total cost recovery was approximately \$1.5M.
- From 1992 to 1995, Mr. Piantka managed a dozen site assessment and interim removal actions at active and closed service station sites throughout California on behalf of Unocal. At some of the sites, SVE tests were conducted and FSS prepared to evaluate remedial alternatives. Mr. Piantka also managed the UST Reimbursement programs for Unocal, which entailed the preparation and submittal of reimbursement applications for approximately 250 service station sites in California and Arizona.
- From 1990 to 1992, Mr. Piantka conducted site assessments and remediation pilot testing, and prepared RCRA closure reports for several operable units at a defense contractor facility for United Technologies, San Jose, California.
- From 1988 to 1992, Mr. Piantka managed tank removal/closure activities and conducted site assessments at several Ford Motor Company facilities in California, Oregon and Washington.
- From 1988 to 1992, Mr. Piantka managed tank removal/closure activities and conducted site assessments at active and closed United States Postal Service sites in Southern and Northern California.
- From 1988 to 1991, Mr. Piantka conducted groundwater monitoring and RIs to assess the extent of diesel- and gasoline-impacted soil and groundwater, on behalf of AC Transit, Alameda and Contra Costa Counties.
- From 1988 to 1992, Mr. Piantka has served as technical lead of Hazardous Materials and Wastes Assessments for proposed transportation improvement projects in Honolulu, HI; Oakland, CA; Sacramento, CA; and San Diego, CA.

**DECLARATION OF
ROBERT MASON**

El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, Robert Mason, declare as follows:

1. I am presently employed by CH2M Hill, Inc. under contract with El Segundo Energy Center, LLC (“Project Owner”) to provide environmental consulting services for the El Segundo Energy Center’s (“ESEC”) Petition to Amend (“PTA”).
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I caused to be prepared or prepared information related to **Project Description and Environmental Analysis (except Air Quality, Noise, Biological Resources, and Cultural Resources)** in support of the PTA for ESEC. Such information was either provided by me to consultants for incorporation of such data into documents or based on my independent analysis of data from reliable documents and sources, as well as my professional experience and knowledge. Specifically, I prepared or caused to be prepared the following:

| DOCUMENT | Date Docketed | Transaction Number |
|--|----------------------|---------------------------|
| El Segundo Energy Center Petition to Amend, Secs. 2 and 3 and related Appendices | 4/23/2013 | TN-70442 |
| Applicant’s Responses to Data Requests in Set One (#1-83) | 9/12/2013 | TN-200464 |
| Applicant’s Responses to Data Requests in Set Two (#84-90) | 9/19/2013 | TN-200532 |
| Applicant’s Response to Data Request 87 of Data Request Set Two | 10/30/2013 | TN-201082 |
| Applicant’s Responses to Data Requests in Set Three (#91-92) | 10/31/2013 | TN-201092 |
| Condition of Certification GEO-5: Applicant’s Final Engineering Geology Report | 11/13/2013 | TN-201185 |

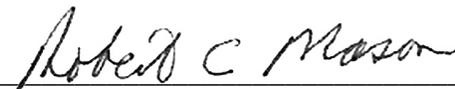
| DOCUMENT | Date Docketed | Transaction Number |
|---|----------------------|---------------------------|
| Applicant's Responses to Data Requests in Set Four (#93) | 11/13/2013 | TN-201186 |
| ESEC Geotechnical Reports Requested in Email Dated November 13, 2013 | 11/21/2013 | TN-201278 |
| Cultural Resources Data to Supplement Responses to Data Request Set 1 | 12/3/2013 | TN-201363 |
| Data to Supplement Project Owner's Response to Data Request 85 | 12/6/2013 | TN-201382 |
| Cultural Resources Data to Supplement Responses to Data Requests 81 and 82 | 12/20/2013 | TN-201462 |
| Data to Supplement Project Owner's Response to Data Request 61 | 12/23/2013 | TN-201467 |
| Response to Data Request Set Five (#94) | 1/6/2014 | TN-201514 |
| Cultural Resources Data to Supplement Data Response 78 | 1/21/2014 | TN-201578 |
| Supplemental Data Related to Data Request Set 3 (Nos. 91 and 92) | 2/28/2014 | TN-201814 |
| Supplemental Worst-Case Analysis Data for Data Request Set 3 (Nos. 91 and 92) | 2/28/2014 | TN-201815 |

4. It is my professional opinion that the information provided to the California Energy Commission related to the ESEC PTA proceeding is valid and accurate with respect to the issues addressed herein.

5. I am personally familiar with the sponsored documents, and if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015



Robert Mason



Robert Mason

Project Manager, Senior Environmental Project Director

Education

M.A., Urban and Regional Studies

B.A., Urban and Regional Studies

Relevant Experience

Mr. Mason has more than 30 years of experience in planning, permitting, and environmental analysis/compliance for large-scale power, industrial, energy, institutional, solid waste, and government projects. He has extensive expertise preparing applications for new power plants to be certified by the California Energy Commission (CEC), and has managed the preparation of eight applications for California power plant projects. He is experienced in the management of multidisciplinary technical teams for collection and analysis of data; preparation of supporting documents for construction and operational permits; negotiation with regulatory agencies regarding permit conditions; preparation of CEQA and NEPA documents; and preparing and making presentations to clients, regulatory agencies, elected and appointed boards, and the public.

Representative Projects

Application for Certification for NRG's Carlsbad Energy Center Project San Diego County, California.

Managed a team, including several subconsultants, that prepared the AFC for the Carlsbad Energy Center Project (CECP) in Carlsbad, California. Mr. Mason directed a multidisciplinary technical team through the preparation of the AFC, and the licensing proceedings with the CEC. The AFC was filed in September 2007 and the CECP was licensed by the California Energy Commission in 2012. CECP is a 540-MW natural-gas-fired, combined-cycle power plant that will facilitate the retirement of existing Units 1 through 3 at the Encina Power Station. The AFC for CECP included the analysis and field studies of the full range of environmental issues, including marine and terrestrial biology, land use, geology and soils, water resources, traffic, noise, air quality and health risk, cultural resources, hazardous materials management, waste management, worker safety, and socioeconomics.

Application for Certification for the South Bay Replacement Project (SBRP) in San Diego County, California.

Managed a team, including several subconsultants, that prepared the AFC for the South Bay Replacement Project in Chula Vista, California. The AFC was filed in June, 2006. The SBRP is proposed as a natural-gas-fired, combined-cycle power plant with two combustion turbines and one steam turbine, with a 500-megawatt (MW) output. The SBRP will be a replacement of the existing South Bay Power Plant (SBPP) that is operated by LS Power under a Lease and Cooperation agreement with the Port of San Diego. The proposed project site is immediately adjacent to and south of the existing plant in the City of Chula Vista adjacent to the San Diego Bay. The replacement project will provide a number of environmental benefits compared to the existing plant.

Application for Certification for the Moss Landing Power Plant in Monterey County, California.

Directed the preparation of the Application for Certification (AFC) for the Moss Landing Power Plant and permitting/licensing of the project through the CEC. This 1,200-megawatt (MW), combined-cycle, natural-gas-fired expansion of the existing power plant at Moss Landing was certified by the CEC and began commercial generation of power in June 2002. The AFC, which is a CEQA equivalent document under California regulation, included the analysis of field study of the full range of environmental issues, including marine and terrestrial biology, land use, geology and soils, water resources, traffic, noise, air quality and health risk, cultural resources, hazardous materials management, waste management, worker safety, and socioeconomics. Directed a multidisciplinary technical team through the preparation of the AFC, and the licensing hearings with the CEC.

Robert Mason

Application for Certification for the Morro Power Plant in San Luis Obispo County, California. Directed the preparation of the AFC for the Morro Bay Power Plant and permitting/licensing of the project through the CEC. This 1,200-MW, combined-cycle, natural-gas-fired upgrade of the existing power plant at Morro Bay completed its licensing process in the summer of 2003. The AFC included the analysis of field study of the full range of environmental issues, including marine and terrestrial biology, land use, geology and soils, water resources, traffic, noise, air quality and health risk, cultural resources, hazardous materials management, waste management, worker safety, and socioeconomics. Directed a multidisciplinary technical team through the preparation of the AFC, and the licensing hearings with the CEC.

Permitting/Licensing of Five 50-MW Peaker Plants in California. Project director and permit manager for licensing/permitting of five 50-MW peaker plants in Southern and Central California for CalPeak Power, LLC. The five peaker plants were on a fast-track schedule to be online to provide commercial peaking power into the Cal-ISO controlled grid in the summer and fall of 2001. Ensured that all local permits (e.g., land use, air quality and water) were in hand to meet the aggressive construction schedule. In this role, directed a multidisciplinary technical team, including various subconsultants to ensure the quality of the analysis, and to ensure that critical milestones and schedules were met. The projects are located in San Diego, Fresno, and Solano Counties. Two of the peaker projects were licensed through the CEC's emergency 21-day permitting process. The other three projects were licensed by local jurisdictions using Mitigated Negative Declarations and local approvals.

Application for Certification for the Huntington Beach Energy Project in Huntington Beach, Orange County, California. Directed the preparation of the Application for Certification (AFC) for the AES Huntington Beach Energy Center Project and permitting/licensing of the project with the California Energy Commission (CEC). This 940-megawatt (MW) combined-cycle, natural gas-fired will allow the retirement of four units at the existing Huntington Beach Generating Station through the replacement of 1960 technology with a state-of-the-art rapid response combined-cycle power plant. The AFC was filed with the CEC in June 2012 and the Project is progressing through the CEC's licensing process. The AFC included the analysis of field study of the full range of environmental issues, including marine and terrestrial biology, land use, geology and soils, water resources, traffic, noise, air quality and health risk, cultural resources, hazardous materials management, waste management, workers safety and socioeconomics. Mr. Mason's directs a multi-disciplinary technical team through the preparation of the AFC, and the licensing by the CEC.

**DECLARATION OF
GARY RUBENSTEIN**

El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, Gary Rubenstein, declare as follows:

1. I am presently employed as Senior Partner by Sierra Research under contract with El Segundo Energy Center, LLC ("Project Owner") to provide consulting services for the El Segundo Energy Center's ("ESEC") Petition to Amend ("PTA").
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I caused to be prepared or prepared information related to **Air Quality, Greenhouse Gas Emissions, and Public Health** in support of the PTA for ESEC. Such information was either provided by me to consultants for incorporation of such data into documents or based on my independent analysis of data from reliable documents and sources, as well as my professional experience and knowledge. Specifically, I prepared or caused to be prepared the following:

| DOCUMENT | Date Docketed | Transaction Number |
|---|----------------------|---------------------------|
| El Segundo Energy Center Petition to Amend, Secs. 3.1 and 3.8 and related Appendices | 4/23/2013 | 70442 |
| Applicant's Letters Dated May 17, 2013 and May 22, 2013 to SCAQMD | 5/28/2013 | 70977 |
| Applicant's Letter to SCAQMD dated May 24, 2013 | 5/29/2013 | 71011 |
| Applicant's Letter to South Coast Air Quality Management District dated June 5, 2013 | 6/6/2013 | 71160 |
| Applicant's Letter Dated June 10, 2013 to South Coast Air Quality Management District | 6/12/2013 | 71279 |
| Applicant's Letter to South Coast Air Quality Management District re Permit Application | 6/28/2013 | 71457 |
| Applicant's Letter Dated July 1, 2013 to South Coast Air Quality Management | 7/1/2013 | 71492 |

| DOCUMENT | Date Docketed | Transaction Number |
|--|----------------------|---------------------------|
| Applicant's Letter to South Coast Air Quality Management District, dated July 17, 2013 | 7/18/2013 | 71653 |
| Sierra Research Supplemental Impact Analysis for the El Segundo Power Facility Modification Project on behalf of Applicant | 7/31/2013 | 200097 |
| Sierra Research Response to SCAQMD Request for Additional Information | 8/26/2013 | 200346 |
| Applicant's Responses to Data Requests in Set One (#1-83) | 9/12/2013 | 200464 |
| Applicant's Supplemental Responses to Certain Data Requests in Set One (17, 19, 23, 34, 36, 38, 40 and 56) | 9/23/2013 | 200666 |
| Applicant's November 5, 2013 Letter to SCAQMD | 11/8/2013 | 201153 |
| Data to Supplement Applicant's Responses to Data Request Set 1 (#34, 44, 57 – 60, 83) | 11/14/2013 | 201210 |
| ESEC LLC 11/07/13 Letter to SCAQMD Re: Combined Impact Analysis | 11/21/2013 | 201276 |
| Data to Supplement the Response to Data Request 56 | 12/6/2013 | 201382 |
| Air Quality Data to Supplement Certain Responses in Data Response Set 1 | 1/3/2014 | 201510 |
| Comments re: South Coast Air Quality Management District Preliminary Determination of Compliance – Replaces TN#201609 | 1/28/2014 | 201611 |

| DOCUMENT | Date Docketed | Transaction Number |
|---|----------------------|---------------------------|
| Revised Offset Plan | 2/4/2014 | 201749 |
| Response to April 2, 2014 SCAQMD Letter; Response to CO2 NSPS and Rule 1305 Comments for FDOC Consideration | 5/5/2014 | 202294 |
| Supplemental Information Regarding Auxiliary Boiler | 6/17/2014 | 202466 |
| Project Owner's Petition to Amend the El Segundo Energy Center Project | 10/3/2014 | 203162 |
| Units 5 and 7 Startup/Restart Information | 10/31/2014 | 203294 |
| Project Owner's 12/03/14 Response Letter re: Title V Administrative Permit Revision | 12/8/2014 | 203413 |

4. It is my professional opinion that the information provided to the California Energy Commission related to the ESEC PTA proceeding is valid and accurate with respect to the issues addressed herein.

5. I am personally familiar with the sponsored documents, and if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015



Gary Rubenstein



**sierra
research**

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Résumé

Gary S. Rubenstein

Education

1973, B.S., Engineering, California Institute of Technology

Professional Experience

8/81 to present Senior Partner
 Sierra Research

As one of the founding partners of Sierra Research, responsibilities include project management and technical and strategy analysis in all aspects of air quality planning and strategy development; project licensing and impact analysis; emission control system design and evaluation; rulemaking development and analysis; vehicle inspection and maintenance program design and analysis; and automotive emission control design, from the initial design of control systems to the development of methods to assess their performance in customer service. As the Partner principally responsible for Sierra Research's activities related to stationary sources, he has supervised the preparation of control technology assessments, environmental impact reports and permit applications for numerous industrial and other development projects.

While with Sierra, Mr. Rubenstein has managed and worked on numerous projects, including preparation of nonattainment plans; preparation and review of emission inventories and control strategies; preparation of the air quality portions of environmental review documents for controversial transportation, energy, mineral industry and landfill projects; preparation of screening health risk assessments and supporting analyses; and the development of air quality mitigation programs. Mr. Rubenstein has managed the preparation of air quality licensing applications for over 16,000 megawatts of generating capacity before the California Energy Commission, and has managed air quality analyses for over 28,000 megawatts of generating capacity in a variety of jurisdictions.

Mr. Rubenstein has presented testimony and served as a technical expert witness before numerous state and local regulatory agencies, including the U.S. Environmental Protection Agency, California State Legislative Committees, the California Air Resources Board, the California Energy Commission, the California Public Utilities Commission, numerous California air pollution control districts, the Connecticut Department of Environmental Protection, the Hawaii Department of Health, and the Alabama Department of Environmental Management. Mr. Rubenstein has also served as

a technical expert on behalf of the California Attorney General and Alaska Department of Law, and has provided expert witness testimony in a variety of administrative and judicial proceedings.

6/79 to 7/81 Deputy Executive Officer
California Air Resources Board

Responsibilities included policy management and oversight of the technical work of ARB divisions employing over 200 professional engineers and specialists; final review of technical reports and correspondence prepared by all ARB divisions prior to publication, covering such diverse areas as motor vehicle emission standards and test procedures, motor vehicle inspection and maintenance, and air pollution control techniques for sources such as oil refineries, power plants, gasoline service stations and dry cleaners; review of program budget and planning efforts of all technical divisions at ARB; policy-level negotiations with officials from other government agencies and private industry regarding technical, legal, and legislative issues before the Board; representing the California Air Resources Board in public meetings and hearings before the California State Legislature, the California Energy Commission, the California Public Utilities Commission, the Environmental Protection Agency, numerous local government agencies, and the news media on a broad range of technical and policy issues; and assisting in the supervision of over 500 full-time employees through the use of standard principles of personnel management and motivation, organization, and problem solving.

7/78 – 7/79 Chief, Energy Project Evaluation Branch
Stationary Source Control Division
California Air Resources Board

Responsibilities included supervision of ten professional engineers and specialists, including the use of personnel management and motivation techniques; preparation of a major overhaul of ARB's industrial source siting policy; conduct of negotiations with local officials and project proponents on requirements and conditions for siting such diverse projects as offshore oil production platforms, coal-fired power plants, marine terminal facilities, and almond-hull burning boilers.

During this period, Mr. Rubenstein was responsible for the successful negotiation of California's first air pollution permit agreements governing a liquefied natural gas terminal, coal-fired power plant, and several offshore oil production facilities.

10/73 to 7/78 Staff Engineer, Vehicle Emissions Control Division
California Air Resources Board

Responsibilities included design and execution of test programs to evaluate the deterioration of emissions on new and low-mileage vehicles; detailed analysis of the

effect of California emission standards on model availability and fuel economy; analysis of proposed federal emission control regulations and California legislation; evaluation of the cost-effectiveness of vehicle emission control strategies; evaluation of vehicle inspection and maintenance programs, and preparation of associated legislation, regulations and budgets; and preparation of detailed legal and technical regulations regarding all aspects of motor vehicle pollution control. Further duties included preparation and presentation of testimony before the California Legislature and the U.S. Environmental Protection Agency; preparation of division and project budgets; and creation and supervision of the Special Projects Section, a small group of highly trained and motivated individuals responsible for policy proposals and support in both technical and administrative areas (May 1976 to July 1978).

Credentials and Memberships

Air & Waste Management Association (Past Chair, Board of Directors, Golden West Section; Member, Board of Directors, Mother Lode Chapter)

American Society of Mechanical Engineers

Qualified Environmental Professional, Institute of Professional Environmental Practice, 1994

**DECLARATION OF
MELISSA FOWLER**

El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, Melissa Fowler, declare as follows:

1. I am presently employed by CH2M Hill, Inc. under contract with El Segundo Energy Center, LLC ("Project Owner") to provide environmental consulting services for the El Segundo Energy Center's ("ESEC") Petition to Amend ("PTA").
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I caused to be prepared or prepared information related to **Biological Resources** in support of the PTA for ESEC. Such information was either provided by me to consultants for incorporation of such data into documents or based on my independent analysis of data from reliable documents and sources, as well as my professional experience and knowledge. Specifically, I prepared or caused to be prepared the following:

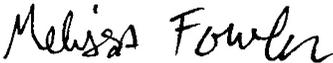
| DOCUMENT | Date Docketed | Transaction Number |
|---|----------------------|---------------------------|
| El Segundo Energy Center Petition to Amend, Sec. 3.2 and related Appendices | 4/23/2013 | TN-70442 |
| Applicant's Responses to Data Requests in Set One (#1-83) | 9/12/2013 | TN-200464 |
| Data to Supplement Project Owner's Response to Data Request 61 | 12/23/2013 | TN-201467 |

4. It is my professional opinion that the information provided to the California Energy Commission related to the ESEC PTA proceeding is valid and accurate with respect to the issues addressed herein.

5. I am personally familiar with the sponsored documents, and if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015



Melissa Fowler



Melissa Fowler

Small Mammal Ecologist/Wildlife Biologist

Education

M.S., Environmental Studies, Emphasis: Environmental Science, California State University, Fullerton, 2010

B.S., Biological Science, California State University, Fullerton, 2005

A.A., Liberal Studies, Fullerton College, Fullerton, 2001

Distinguishing Qualifications

- More than 10 years of experience conducting wildlife studies
- Experience conducting botanical surveys, wildlife surveys, habitat assessments, vegetation mapping, biological monitoring, rare plant surveys (primarily in the Mojave Desert), re-vegetation monitoring and wetland delineations

Relevant Experience

Ms. Fowler is a biologist with CH2M HILL's Environmental Services Business Group in Santa Ana, California. She specializes in small mammal ecology, particularly desert species, and wildlife biology. She has more than 12 years of experience conducting a variety of wildlife studies in a range of California habitats, including aquatic (freshwater and marine) and terrestrial ecosystems, and has worked with a wide range of species that include large carnivores, small mammals, raptors and other avian species, reptiles, marine fishes and aquatic macroinvertebrates. Ms. Fowler has conducted a variety of surveys for commercial projects including botanical surveys, wildlife surveys, habitat assessments, vegetation mapping, biological monitoring, rare plant surveys (primarily in the Mojave Desert), re-vegetation monitoring and wetland delineations. She has a scientific collecting permit for mammals and reptiles in Kern, Los Angeles, Riverside and San Bernardino Counties and the coast horned lizard in Region 5 (SC-11611).

Representative Projects

Biologist, AES Southland Development, Alamitos Energy Center (AEC), Los Angeles County, California. Prepared the biological resources section for an Application for Certification (AFC) for a natural gas-fired power plant, coordinated with resource agencies and conducted site reconnaissance survey.

Biologist, AES Southland Development, Redondo Beach Energy Project (RBEP), Los Angeles County, California. Prepared the biological resources section for an AFC for a natural gas-fired power plant, coordinated with resource agencies and conducted site reconnaissance survey. Responded to California Energy Commission (CEC) data requests and comments; participated in agency site tour.

Biologist, AES Southland Development, Huntington Beach Energy Project (HBEP), Orange County, California. Assisted with the preparation of the biological resources section for an AFC for a natural gas-fired power plant, coordinated with resource agencies, conducted initial site visit and supplemental botanical and wildlife survey, technical representative for public workshops, and responded to CEC data requests and comments.

Biologist; North Sky River Wind Energy Project; NextEra; Kern County, California. Conducted rare plants surveys along a transmission line corridor. Attended county planning meeting and participated in the renewable energy forum, which included multiple stakeholders. Assisted with biological monitoring during the construction phase.

Biologist; Confidential Client; Los Angeles County, California. Prepared the biological resources section for an Application for Certification (AFC), coordinated with resource agencies and conducted site reconnaissance survey.

Melissa Fowler

Biologist; Confidential Client; Saudi Arabia. Prepared baseline sections for terrestrial biological resources and marine ecology, impact assessments, and mitigation sections for an Environmental Impact Assessment (EIA) for a chemical plant.

Biologist; Union Pacific Railroad; Imperial County, California. Conducted preconstruction clearance surveys for burrowing owls, habitat assessments and construction monitoring for desert pupfish.

Biologist; Terra-Gen Power, LLC; Kern County, California. Supported multiple projects by conducting wetland delineations, habitat assessments, vegetation mapping, condor monitoring and multiple wildlife surveys, desert tortoise and Mohave ground squirrel monitoring, geotechnical escorting, potholing monitoring, assisted with protocol southwestern willow flycatcher surveys, supported project permitting, including multiple LSAs and Section 401 Waste Discharge Requirements (WDR), and prepared technical memos.

Biologist; Confidential Client; San Bernardino County; California and Mohave County, Arizona Assisted with wetland delineations and vegetation mapping for the updated project boundary.

Biologist; Confidential Client; Orange County, California. Assisted with the preparation of the biological resources section for an Application for Certification (AFC), coordinated with resource agencies, conducted initial site visit and supplemental botanical and wildlife survey, and responded to California Energy Commission (CEC) comments.

Biologist; Confidential Solar Energy Client; Kern County, California. Conducted raptor migration and raptor landscape use surveys throughout the proposed wind energy site.

Biologist; Confidential Client; Iraq. Prepared baseline ecology, impact assessment, and mitigation sections for an Environmental and Social Impact Assessment (ESIA) for a water treatment plant. Ecology baseline included terrestrial and wetland habitats.

Biologist; Confidential Wind Energy Client; San Bernardino County, California. Conducted delineation surveys of ephemeral washes for a potential mitigation site in the Mojave Desert. Prepared report for delineation surveys and analyzed the suitability of confidential location as a mitigation site for a solar project.

Biologist; San Timoteo Canyon Derailment; Union Pacific Railroad; Riverside County, California. Conducted re-vegetation monitoring of site restoration activities for derailment affected areas, replanting of native vegetation and establishment of weed management areas were conducted in accordance with U.S. Army Corps of Engineers (USACE) (USACE #2006-01654-JPL) and State Water Resources Control Board (State Water Board) (WDID #836C343929) requirements. Prepared annual re-vegetation monitoring report.

Biologist; Confidential Solar Energy Client; Inyo County, California. Prepared the Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) for the Colorado River Basin Regional Water Quality Control Board (RWQCB).

Biologist; Confidential Wind Energy Client; Riverside County, California. Prepared application packages for a proposed wind energy project for a Lake and Streambed Alteration (LSA) Notification for California Department of Fish and Game (CDFG) and the CWA Section 401 WQC for the Colorado River Basin RWQCB.

Biologist; Confidential Solar Energy Client; Riverside County, California. Prepared the Evaporation Pond Plan and assisted with preparing the Biological Resources Mitigation Implementation and Monitoring Plan.

Biologist; TID Almond 2 Power Plant; Turlock Irrigation District; Stanislaus County, California. Conducted construction and dewatering monitoring for the giant garter snake within areas of suitable habitat.

Biologist; Confidential Solar Energy Client; Imperial County, California; 2011. Prepared and revised avian and bat protection plans for two proposed solar farms in Imperial County, California.

**DECLARATION OF
CLINTON HELTON**

El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, Clinton Helton, declare as follows:

1. I am presently employed by CH2M Hill, Inc. under contract with El Segundo Energy Center, LLC (“Project Owner”) to provide environmental consulting services for the El Segundo Energy Center’s (“ESEC”) Petition to Amend (“PTA”).
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I caused to be prepared or prepared information related to **Cultural Resources** in support of the PTA for ESEC. Such information was either provided by me to consultants for incorporation of such data into documents or based on my independent analysis of data from reliable documents and sources, as well as my professional experience and knowledge. Specifically, I prepared or caused to be prepared the following:

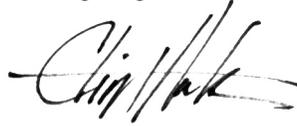
| DOCUMENT | Date Docketed | Transaction Number |
|---|----------------------|---------------------------|
| El Segundo Energy Center Petition to Amend, Sec. 3.3 and related Appendices | 4/23/2013 | TN-70442 |
| Applicant's Responses to Data Requests in Set One (#1-83) | 9/12/2013 | TN-200464 |
| Cultural Resources Data to Supplement Responses to Data Request Set 1 | 12/3/2013 | TN-201363 |
| Cultural Resources Data to Supplement Responses to Data Requests 81 and 82 | 12/20/2013 | TN-201462 |
| Cultural Resources Data to Supplement Data Response 78 | 1/21/2014 | TN-201578 |

4. It is my professional opinion that the information provided to the California Energy Commission related to the ESEC PTA proceeding is valid and accurate with respect to the issues addressed herein.

5. I am personally familiar with the sponsored documents, and if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015

A handwritten signature in black ink, appearing to read "Clinton Helton", written over a horizontal line.

Clinton Helton



Clinton Helton, RPA

Cultural Resources Specialist

Education

M.A., Anthropology

B.A., Spanish Language and Literature

Professional Registrations

Registered Professional Archaeologist (1999, No. 11280)

Principal Investigator and/or Permit Administrator, U.S. Federal Antiquities Permits in AZ, CA, CO, OR, WA, UT, NV

Distinguishing Qualifications

- 18 years of experience conducting environmental impact evaluations, with particular expertise in conducting cultural resources studies in California, Arizona, Nevada, and Utah
- Extensive experience in regulatory compliance, cultural resources, National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance activities
- Highly experienced managing cultural resources studies for large linear utility, energy, mining, and transportation projects

Relevant Experience

Mr. Helton has more than 18 years of environmental management experience with an expertise in archaeology and cultural resources/cultural heritage management. He has a strong background in environmental impact evaluations, having directed technical studies; negotiated with lead agencies, responsible agencies and clients; and has written, edited, and produced a substantial number of environmental review and technical documents. Mr. Helton frequently acts as a senior technical advisor and senior reviewer for projects and clients throughout the United States and internationally, with particular expertise in Arizona, California, Nevada, and Utah.

His knowledge of regulatory compliance and cultural and paleontological resources enables him to manage NEPA and NHPA compliance activities and document preparation. Mr. Helton is a particularly skilled practitioner of federal regulations governing treatment of cultural resources, especially Section 106 of NHPA (36CFR800) and the Native American Graves Protection and Repatriation Act (43CFR10). Mr. Helton has significant expertise conducting consultation with state and federal agencies, as well as facilitating formal government-to-government consultation with Native American groups and tribes throughout the western U.S. Mr. Helton has authored numerous environmental technical reports, cultural resources management plans, cultural resources studies, Programmatic Agreements, Memorandums of Understanding, and contributed to many NEPA documents for a variety of private and public sector clients.

Mr. Helton meets the Professional Qualification Standards stated in the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.

Representative Projects

Task Leader; AES Southland Development, Huntington Beach Energy Project (HBEP), Orange County, California. Provided senior technical leadership in preparation of the cultural resources section for an AFC for a natural gas-fired power plant, including field surveys, report preparation, and conducting Native American consultation.

Task Leader; AES Southland Development, Alamitos Energy Center (AEC), Los Angeles County, California. Provided senior technical leadership in preparation of the cultural resources section for an AFC for a natural gas-fired power plant, including field surveys, report preparation, and conducting Native American consultation.

Clinton Helton, RPA

Task Leader; AES Southland Development, Redondo Beach Energy Project (RBEP), Los Angeles County, California. Provided senior technical leadership in preparation of the cultural resources section for an AFC for a natural gas-fired power plant, including field surveys, report preparation, and conducting Native American consultation.

Construction Compliance, Mojave Solar Project, Abengoa Solar, Harper Lake, California. CH2M HILL is conducting biological and cultural resources compliance monitoring during construction of this 250-MW solar thermal power plant in the Mojave Desert. The California Energy Commission has granted a license to construct the facility and the Bureau of Land Management is acting as the lead federal agency representative to ensure compliance with NEAP conditions. This project uses parabolic trough solar thermal technology to produce electrical power using a steam turbine generator. Because of the large acreage required for this project (over 2,000 acres), potential impacts and mitigation for biological and cultural resources are major issues. Mr. Helton is the Principal Investigator for this project, and CH2M HILL's team includes multiple cultural and biological resources specialists and monitors. Compliance monitoring is expected to occur through July 2014.

Senior Technologist/Task Leader; Hidden Hills Solar Electric Generating System Transmission Line; Bright Source Energy; Clark County, Nevada. Mr. Helton was the senior consultant for the cultural resources impact assessment of a proposed transmission system entailing 54 miles of 500kV line and 28 miles of 230kV line routed through a desert landscape in southwest Nevada.

Senior Technologist/Task Leader; Ivanpah Solar Electric Generating System Project; BrightSource Energy; San Bernardino County, California. CH2M HILL prepared an Application For Certification on behalf of this energy development client for the California Energy Commission in support of a large proposed solar power generation facility covering over 5,000 acres of land managed by Bureau of Land Management in San Bernardino County, California, just south of Las Vegas, Nevada. Our cultural resources team conducted extensive analysis over a 3-year period including Native American consultation, geoarchaeological analysis, and helicopter surveys to identify Traditional Cultural Places. The project is currently being deployed in California's Mojave Desert and is currently the largest solar energy plant under construction in the world.

Task Manager, Edison Mission Energy, Walnut Creek Energy Park Power Plant, California. Assisted with preparation of AFC for CEC in support of this proposed 500-MW power generation facility in Los Angeles County, California. Responsible for preparation of cultural resources component of project, including field surveys, report preparation, and conducting Native American consultation.

Task Manager, Edison Mission Energy, Sun Valley Energy Center Power Plant, California. Assisted with preparation of AFC for CEC in support of this proposed 500-MW power generation facility in San Bernardino County, California. Responsible for preparation of cultural resources component of project, including field surveys, report preparation, and conducting Native American consultation.

Task Manager, Chula Vista Energy Upgrade Project, MMC Energy, San Diego County, California. Task Lead and overall management of cultural resources studies for this 100-MW power plant upgrade project in San Diego County, California. Responsible for preparation of cultural resources component of project, including field surveys, report preparation, and conducting Native American consultation.

AFCs for Walnut Creek Energy Park and Sun Valley Energy Project, Edison Mission Energy, City of Industry/Romoland, California. Provided support for two Applications for Certification before the California Energy Commission for similarly designed 500-MW natural gas-fired peaking power plants using the GE LMS100 advanced gas turbine technology. These applications were prepared in parallel and were filed at the Energy Commission within one week of one another. The AFCs were filed in December of 2005 and the projects are scheduled to begin construction in 2007.

**DECLARATION OF
MARK BASTASCH**

El Segundo Energy Center Petition to Amend (00-AFC-14C)

I, Mark Bastasch, declare as follows:

1. I am presently employed by CH2M Hill, Inc. under contract with El Segundo Energy Center, LLC (“Project Owner”) to provide environmental consulting services for the El Segundo Energy Center’s (“ESEC”) Petition to Amend (“PTA”).
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I caused to be prepared or prepared information related to **Noise and Vibration and Biological Resources (as it relates to Noise)** in support of the PTA for ESEC. Such information was either provided by me to consultants for incorporation of such data into documents or based on my independent analysis of data from reliable documents and sources, as well as my professional experience and knowledge. Specifically, I prepared or caused to be prepared the following:

| DOCUMENT | Date Docketed | Transaction Number |
|---|----------------------|---------------------------|
| El Segundo Energy Center Petition to Amend, Sec. 3.7 and related Appendices | 4/23/2013 | TN-70442 |
| Applicant’s Responses to Data Requests in Set One (#1-83) | 9/12/2013 | TN-200464 |
| Data to Supplement Project Owner’s Response to Data Request 61 | 12/23/2013 | TN-201467 |
| Replacement Figure for Proposed Condition of Certification NOISE 8 | 5/23/2014 | TN-202376 |

4. It is my professional opinion that the information provided to the California Energy Commission related to the ESEC PTA proceeding is valid and accurate with respect to the issues addressed herein.
5. I am personally familiar with the sponsored documents, and if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 12, 2015



Mark Bastasch



Mark Bastasch, P.E., INCE

Environmental Engineer, Noise Assessment

Education

M.S., Environmental Engineering
B.S. (cum laude), Environmental Engineering

Professional Registrations

Professional Acoustical Engineer: Oregon
Professional Environmental Engineer: Oregon (No. 58990EN)
Professional Civil Engineer: Oregon, 1999 (No. 58990PE)
Certified Water Rights Examiner (CWR): Oregon, 2000 (No. 58990CWRE)

Organizations / Affiliations

Member, Institute of Noise Control Engineering
Member, Acoustical Society of America

Relevant Experience

Mr. Bastasch is a registered acoustical engineer with 16 years of experience conducting acoustical evaluations, environmental audits, contamination assessments, and multimedia environmental permitting. For the past decade, Mr. Bastasch has provided technical insight, forethought and leadership on acoustical matters to the renewable power industry and its partners and has been an invited speaker to organizations such as Harvard Law School/Consensus Building Institute, USDOE's Wind Powering America, International Energy Agency/USDOE's National Renewable Energy Laboratory, the National Wind Coordinating Council, Law Seminars International, American Wind Energy Association, USDOE's New England Wind Energy Education Project and with officials in Japan. His power permitting and design experience spans the United States and he has supported multiple EPC efforts both domestic and internationally which have fully complied with applicable regulatory limits.

Relevant Experience

Lead Acoustical Engineer; Edison Mission Energy's GE LMS100 Peaking Facilities; Southern California. Led acoustical tasks on two simple cycle power facilities each utilizing 5 GE LMS100 combustion turbines in simple cycle. Tasks included evaluating and measuring background noise levels to determine and evaluate risk associated with potential CEC permit limits; extensive coordination with GE given limited available data resulting from short operating history of the LMS100 (these were the first LMS100 evaluated in California); preparing Application for Certification to the CEC. Additional tasks included development and review of acoustical bid and guarantee specifications for cooling towers, SCR, stack, transformers, and other balance of plant equipment. Developed a phased mitigation program to minimize cost and mitigate acoustical risk given limited operating history similarly packaged LMS100s

Acoustical Engineer; Los Esteros Critical Energy Facility, San Joaquin Valley Energy Center, East Altamont Energy Center, Delta Energy Center; Calpine Corporation; California. Conducted detailed environmental noise survey to demonstrate that this simple cycle LM6000 facility complied with its conditions of certification. Report was accepted by the California Energy Commission without comment.

Lead Acoustical Engineer; Walnut Energy Center; Turlock Irrigation District; Turlock, California. Led acoustical tasks for a combined cycle power plant that included evaluating and measuring background noise levels; developing detailed noise model; comparing expected noise levels with the City of Turlock, County of Stanislaus, and the CEC's noise guidelines; preparing Application for Certification and subsequent amendments submitted to the CEC; regulatory negotiation; and reviewing Conditions of Certification.

Mark Bastasch, P.E., INCE

Additional tasks included development assistance with acoustical bid and guarantee specifications and independent analysis of manufacturer steam turbine generator enclosure.

Lead Acoustical Engineer; BrightSource Energy; Ivanpah Solar Electric Generating System. Authored noise section of California Energy Commission Application for Certification. Successfully worked with CEC staff to streamline noise analysis and eliminate unnecessary field studies given remote project site and lack of noise sensitive receptors.

Lead Acoustical Engineer; MEGS; Modesto Irrigation District; Ripon, California. Led acoustics for a LM6000 (Norway package) power plant. Tasks included evaluating and measuring background noise levels; coordinating measurements of operating Norway Package with General Electric; developing detailed noise model; comparing expected noise levels with the City of Ripon, County of Stanislaus, and the California Energy Commission's (CEC) noise guidelines; preparing Application for Certification and subsequent amendments submitted to the CEC; regulatory negotiation; and review of Conditions of Certification, testimony at CEC evidentiary hearings.

Lead Acoustical Engineer; Eastshore Power Project; Tierra Energy; Hayward, California. Evaluated and measured background noise levels to determine and evaluate risk associated with potential CEC permit limits and prepared application for certification to the CEC. Reviewed available vendor data and commitments. The facility is a 115.5-MW simple cycle power plant consisting of 14 Wärtsilä 20V34SG natural-gas-fired reciprocating engine generators and associated equipment.

Lead Acoustical Engineer; Humboldt Bay Repowering Project; Pacific Gas & Electric; Humboldt, California. Evaluated and measured background noise levels to determine and evaluate risk associated with potential CEC permit limits; prepared application for certification to the CEC, conducted site tour with CEC's acoustical staff and reviewed of existing EPC commitments. Facility is a load following power plant consisting of 10 natural gas-fired Wärtsilä 18V50DF 16.3 megawatt (MW) reciprocating engine-generator sets and associated equipment with a combined nominal generating capacity of 163 MW.

Project Manager/Lead Acoustical Engineer; Calpine GE LM6000 Peaker Program; Calpine Corporation; Dublin, California. Prepared California Environmental Quality Act level noise assessments for more than 10 LM6000-based peaking power plants located throughout northern California. Developed a flexible and streamlined program to accurately and quickly prepare acoustical assessment. Tasks included regulatory review and interpretation of city and county noise standards, ambient measurements and analysis, development of a standardized model that included several levels of optional mitigation and field verification at operating facilities, and regulatory negotiations.

Lead Acoustical Engineer; Cosumnes Power Plant, Sacramento Municipal Utility District, California. Led acoustical tasks on this two-phase, 1,000-MW combined-cycle power plant on buffer lands for the former Rancho Seco Nuclear Plant. Prepared AFC, worked with SMUD legal counsel and permitting team to address intervenor comments. Alternative mitigation measures were developed in consultation with CEC Staff to establish acceptable Conditions of Certification Application for Certification for combined-cycle gas fired generation facility. Prepared amendments to include a natural gas transmission line and required gas compressors. Expert witness testimony before California Energy Commission.

Lead Acoustical Engineer; Licensing and Permitting for San Francisco Electric Reliability Project (SFERP); San Francisco Public Utilities Commission. Led acoustical tasks to develop a 145-MW simple-cycle plant in southeast San Francisco, using three LM 6000 turbines. Because plant is located two blocks south of an existing plant, major issues included remediation of the power plant site (contaminated fill), air quality mitigation measures, water supply, environmental justice, and the need for in-city generation.