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PETITION TO AMEND

MARSH LANDING GENERATING STATION (08-AFC-3C)

Submitted to:

The California Energy Commission

Submitted by:

NRG Marsh Landing LLC

Prepared by:

URS Corporation

June 2014

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ACRONYMS

ADNWR	Antioch Dunes National Wildlife Refuge
AFC	Application for Certification
afy	acre-feet per year
ATC	Authority to Construct
ATCM	Airborne Toxics Control Measure
BAAQMD	Bay Area Air Quality Management District
CARB	California Air Resources Board
CCR	California Code of Regulations
CCGS	Contra Costa Generating Station
CCCFPD	Contra Costa County Fire Protection Department
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CI	compression injection
cfm	cubic feet per minute
CO	carbon monoxide
CO_2	carbon dioxide
CPM	Compliance Project Manager
CTG	combustion turbine generator
ERCs	Emission Reduction Credits
°F	degrees Fahrenheit
GHG	greenhouse gas
gpm	gallons per minute
gr/100 scf	grain of sulfur per 100 cubic feet
g/HP-hr	grams per horsepower-hour
g/KW-hr	grams per kilowatt-hour
HP	horsepower
ICE	internal combustion engine
KW	kilowatt
MLGS	Marsh Landing Generating Station
MW	megawatt
$\mu g/m^3$	micrograms per cubic meter
MMBTU/hr	million British thermal units per hour
MT	metric tonnes
$MTCO_2E$	metric tonnes of carbon dioxide equivalents
$MTCO_2/MWh$	metric tonnes of carbon dioxide per megawatt-hour
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NMHC	non-methane hydrocarbons
O_2	oxygen
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
ppmv	parts per million by volume
PTC	Permit to Construct
PTO	Permit to Operate
RSA	Revised Staff Assessment
SF6	sulfur hexafluoride
SO_2	sulfur dioxide

TBACT	Toxic Best Available Control Technology
tpy	tons per year
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compounds

1.0 INTRODUCTION

In accordance with Title 20 California Code of Regulations Section 1769 (Section 1769), NRG Marsh Landing LLC (formerly known as GenOn or Mirant Marsh Landing LLC) (NRG Marsh Landing) submits this petition to amend the Marsh Landing Generating Station project (MLGS or project) license to address proposed changes related to new equipment. In August 2010, the California Energy Commission (CEC) issued the Commission Decision approving the MLGS, adopted in Order No. 10-0825-03 in Docket 08-AFC-3C (Commission Decision). The Bay Area Air Quality Management District (BAAQMD) issued the Authority to Construct (ATC) for the MLGS in August 2010. As approved in the Commission Decision and the ATC, the MLGS is a nominal 760-megawatt (MW) electricity generating facility consisting of four simple cycle natural gas-fired combustion turbines.

In 2012, a petition was submitted to cover certain refinements to the design of the project's fuel gas preheater system, water supply and treatment processes, and other project components (URS, 2012). CEC approved the petition to incorporate the design refinements on May 1, 2012 (CEC, 2012).

On May 1, 2013, MLGS commenced commercial operations.

As a result of equipment changes that occurred during construction and the Contra Costa Generating Station (CCGS) owner's request that MLGS modify their fire suppression system, NRG Marsh Landing identified the need to install a diesel backup generator and install a new diesel fire pump engine. These modifications are necessary or desirable to ensure that the project will be capable of performing as intended. These modifications are all within the 27-acre project site and do not result in any additional disturbed areas beyond the site that were not previously evaluated in the record supporting adoption of the Commission Decision. This petition describes the project modifications and analyzes whether they result in any environmental consequences not previously analyzed. As set forth below, the project modifications do not materially change the environmental consequences of the MLGS and all impacts are expected to remain less than significant.

In April 2014, NRG Marsh Landing submitted an application to BAAQMD to permit the emergency diesel engine and the diesel fire pump engine. BAAQMD completed an evaluation of the diesel engines, including a health risk screening analysis, and determined that the addition of these engines will not have a significant effect on the environment. New Air Quality conditions are proposed to address the operation of these two diesel engines.

As stated above, this petition is submitted in accordance with Section 1769. Section 1769 specifies that after the final decision approving a project is effective, the applicant must file with the CEC a petition for any modifications it proposes to the project design, operation, or performance requirements. Section 1769 specifies that the petition must contain the following information:

(A) A complete description of the proposed modifications, including new language for any conditions that will be affected.

Section 2.0 below provides a complete description of the project modifications. The proposed new conditions of certification to address the project modifications are provided in Appendix A.

(B) A discussion of the necessity for the proposed modifications.

The project modifications associated with the diesel backup generator are based on equipment changes that occurred during final equipment installation that necessitated a change in the emergency backup system (i.e., from battery system to diesel generator system). This modification is necessary to ensure the most effective and efficient

operation of the project. In addition, the owner of the CCGS has requested that MLGS no longer rely on the CCGS fire pump for the MLGS fire suppression system; therefore, MLGS needs to install a new fire pump.

(C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time.

The project modifications are based on equipment changes that occurred during construction and a request from CCGS received after the Commission Decision was issued.

(D) If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted.

The project modifications do not materially change or undermine the assumptions, rationale, findings, or other bases of the Commission Decision.

(E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts.

The project modifications will not have any adverse impacts on the environment, and no measures beyond those already included in the existing and proposed Conditions of Certification are required.

(F) A discussion of the impact of the modifications on the facility's ability to comply with applicable laws, ordinances, regulations, and standards.

The project modifications will not affect the project's ability to comply with applicable laws, ordinances, regulations, and standards.

(G) A discussion of how the modification affects the public.

The project modifications will not have any material adverse effect on the public.

(H) A list of property owners potentially affected by the modification.

The project modifications will not have any material adverse effect on any property owners. The list of property owners within 1,000 feet of the project is provided in Appendix B. The list has been newly compiled for this petition to reflect data currently available in the public land records.

(I) A discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.

The project modifications will not have a material adverse effect on nearby property owners, the public or the parties to the application proceeding.

Based on the information and analysis provided in support of this petition, we believe that staff can determine that: (1) there is no possibility that the project modifications may have a significant effect on the environment; and (2) the project modifications will not make changes that would cause the project not to comply with any applicable laws, ordinances, regulations, or standards. Nonetheless, additions to the Air Quality conditions and a slight change to BIO-8 in the Commission's Decision are required to cover the operation of the diesel engines.

2.0 PROJECT MODIFICATIONS

Modifications to the project include: 1) a new emergency generator and 2) modifications to the fire suppression system.

2.0.1 Emergency Generator

- The new emergency generator will be located between Units 2 and 3 as shown on Figure 1.
- The new emergency generator will be housed inside a small equipment cabinet that will be approximately 192 square feet in area and 12 feet tall. The equipment cabinet will be placed on a concrete foundation pad; maximum depth of excavation for the foundation is approximately 3 feet.
- A concrete berm will be constructed around the emergency generator to provide secondary containment of the diesel fuel in the unlikely event of a spill. The secondary containment sump will be designed to contain the diesel fuel and the rainfall from a 25-year, 24-hour event. The new MLGS emergency generator will be driven by a 779-horsepower (HP) diesel engine.
- Other than emergency uses, the generator will be operated for maintenance and reliability testing runs of approximately 30 minutes every other week. The total hours of operation will not exceed 50 hours per year.
- Table 2.0-1 identifies the characteristics of the diesel engine for the emergency generator.

2.0.2 Fire Suppression System

The MLGS onsite fire suppression system includes an underground firewater loop that supplies the hydrants and fixed suppression systems installed for the MLGS structures. MLGS currently shares the CCGS fire pump that draws water from the San Joaquin River.

CCGS has requested that MLGS be disconnected from the CCGS fire pump system. The proposed modifications to the MLGS fire suppression system are as follows:

- The fire suppression system will be modified to include a new diesel fire pump and associated piping. The new diesel fire pump will be located near the Raw Water Storage Tank and the existing fire loop piping as shown on Figure 1. There will be a minimal amount of new connection pipe (i.e., approximately 150 lineal feet). Some of the piping will be underground and some will be above ground. Maximum depth of the underground piping will be approximately 5 feet below ground surface.
- The new fire pump will be housed inside a small building that will be approximately 625 square feet in area and approximately 14 feet tall. The building will be placed on a concrete foundation pad; maximum depth of excavation for the foundation is approximately 3 feet.
- The fire pump building will be surrounded by a concrete berm to contain the diesel fuel in the unlikely event of a spill. The secondary containment sump will be designed to contain the diesel fuel and the rainfall from a 25-year, 24-hour event.

Table 2.0-1
Marsh Landing Generating Station
Diesel Engines for Emergency Generator and Fire Pump

Parameter	Units	Emergency Generator Engine[1]	Fire Pump Engine[2]
Model		Caterpillar C15 Tier 4 Interim	Cummins CFP9E-F20 or equivalent
Engine rated output	HP	779	299
Engine capacity	KW	581	223
Stack Height above ground surface	feet	12 (minimum)	14 (minimum)
Exhaust temperature	°F	1,263	1036
Exhaust flow rate	cfm	3,185	1,927
Exhaust flange internal diameter	inches	8	5
Fixed rain cap or horizontal exhaust?	Yes or no	No	No
Fuel Use	gallons per year	2,200	800

Notes:

[1] Values shown for the emergency generator engine are for Caterpillar CCPXL15.2HZA.

[2] The fire pump engine has not been selected. Values for the fire pump engine are based on specifications for a Cummins CFP9E-F20 diesel engine. Actual engine will be similar or smaller.

cfm = cubic feet per minute
°F = degrees Fahrenheit
HP = horsepower
KW = kilowatt

- Connections to the CCGS fire pump system will be capped and left in place.
- Approximately half of the capacity in the existing MLGS 600,000-gallon Raw Water Storage Tank will be used for the fire suppression system (i.e., 300,000 gallons will be reserved strictly for the Fire System). No new water storage tanks are required.
- There will be no change in the Project's annual use of water, which is currently limited to a maximum of 50 acre-feet per year (afy) of city water. There will be periodic testing of the pumps and flushing of the system, but this will not increase the annual water usage.
- The existing CCGS fire pump diesel engine is rated at 270 HP. The CCGS diesel engine driven fire pump could be retired upon approval from the CCCFPD Fire Inspector, after CCGS completes specific decommissioning activities, and after the new MLGS fire pump system is installed, commissioned, and tested. There would be about a 2-month overlap where the new MLGS diesel fire pump is in service and the CCGS diesel fire pump has not yet been retired.
- The new MLGS fire pump diesel engine has not been selected. For purposes of the analysis, specifications for a currently available engine were used (see parameters in Table 2.0-1).

- The annual hours of operation for maintenance checks and readiness testing includes weekly reliability runs of 30 minutes, an annual pump test of about 5 hours and periodic hydrant testing in accordance with the MLGS Fire Prevention Plan. The total estimated annual hours will not exceed 50 hours.

- The existing CCGS fire pump draws water from the San Joaquin River. The new MLGS fire pump will draw water from the Raw Water Storage Tank which is supplied by City of Antioch water and will no longer draw water from the river.

- The State of California's Airborne Toxics Control Measure (ATCM) for Stationary Compression Ignition Engines specifically requires that a new fire pump engine meet certification requirements and emission standards required under 40 CFR § 60.4202(d) (Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE)). NRG Energy intends to purchase a new engine certified to meet those requirements that are provided below.

Maximum Engine Power	Model year(s)[1]	Emission Standards, g/HP-hr (g/KW-hr)		
		PM	NMHC+NO_X	CO
175 ≤ HP < 300 (130 ≤ kW < 225)	2008 and earlier	0.40 (0.54)	7.8 (10.5)	2.6 (3.5)
	2009+[a]	0.15 (0.20)	3.0 (4.0)	

Notes:

[1] In model years 2009–2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute may comply with the emission limitations for 2008 model year engines.

CO = carbon monoxide
g/HP-hr = grams per horsepower-hour
g/KW-hr = grams per kilowatt-hour
HP = horsepower
KW = kilowatt
NMHC= non-methane hydrocarbons
PM= particulate matter

As explained further below, these modifications to the project do not result in any changes to the environmental consequences of the MLGS. Furthermore, all impacts are expected to remain less than significant with implementation of Conditions of Certification set forth in the Commission Decision and proposed in this petition (see Appendix A).

2.1 AIR QUALITY

NRG Marsh Landing is proposing to include a new diesel engine to power an emergency generator and a new diesel fire pump engine.

The new diesel engines will be located as shown on Figure 1. The new engines will each operate up to 50 hours per year for maintenance and testing. The project modifications do not alter the size, configuration, location or operation of the four simple cycle units consisting of four Siemens 5000 F natural gas–fired combustion turbine generators (CTGs) with ultra-low NO_X combustors and inlet air evaporative coolers.

The emission factors for particulate matter (PM), carbon monoxide (CO), volatile organic compounds (VOC), and nitrogen oxide (NO_X) for the emergency diesel generator are based on the California Air Resources Board (CARB) exhaust certification levels for this engine (CARB Executive Order U-R-001-0430). The PM, CO, VOC, and NO_X emission factors for the fire pump diesel engine are based on the CARB exhaust certification levels for this engine (CARB Executive Order U-R-002-0521). Sulfur dioxide (SO_2) emissions are based on a diesel fuel sulfur content of 15 parts per million by weight (ppmw). Table 2.1-1 presents the emission factors for both engines.

Table 2.1-1
Marsh Landing Generating Station
Diesel Engine Emission Rates

Pollutant	Emergency Generator		Fire Pump Engine	
	Emission Factor	Fuel Content	Emission Factor	Fuel Content
CO [1, 3] (g/HP-hr)	0.82		1.42	
CO_2 [2] (kg/gallon)		10.5		10.5
NO_X [1, 3] (g/HP-hr)	2.31		2.41	
$PM_{10}/_{2.5}$ [1, 3] (g/HP-hr)	0.05		0.13	
SO_2 [4] (ppm)		15		15
VOC [1, 3] (g/HP-hr)	0.07		0.13	

Notes:

[1] Emission factors for PM, CO, VOC, and NO_X for the Emergency Diesel Generator are based on the CARB exhaust certification levels for this engine (CARB Executive Order U-R-001-0430).

[2] Carbon dioxide (CO_2) emission factors are based on carbon content of fuel. The diesel CO_2 factor is based on the 2013 California Air Resources Board Regulation for Mandatory Reporting.

[3] Emission factors for PM, CO, VOC, and NO_X for the Diesel Fire Pump are based on the CARB exhaust certification levels for this engine (CARB Executive Order U-R-002-0521).

[4] SO_2 emission factors are based on sulfur content. The diesel fuel sulfur content is assumed to be 15 ppm.

CO = carbon monoxide
CO_2 = carbon dioxide
g/HP-hr = grams per horsepower-hour
kg = kilogram
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
ppm = parts per million
SO_2 = sulfur dioxide
VOC = volatile organic compounds

Table 2.1-2 presents the new total project emissions including the new diesel engine emissions, as well as the total project emissions presented in the Revised Staff Assessment (June 2010) and Project Design Refinements (CEC, 2012a). The emissions from the new diesel engines of NO_X, VOC, $PM_{10}/PM_{2.5}$, CO and SO_X would be negligible. The VOC, $PM_{10}/PM_{2.5}$, and SO_X emissions increases are less than 0.01 tons per year (tpy). The CO emissions increase is approximately 0.06 tpy. The NO_X emissions increase by approximately 0.14 tpy, which is less than two tenths of a percent of the overall facility NO_X emissions.

Table 2.1-2
Marsh Landing Generating Station
Maximum Annual Emissions
(tons per year [tpy])

Source	NO_X	VOC	PM_{10}/ $PM_{2.5}$	CO	SO_X
Total Four CTGs Maximum Annual[1,2]	78.57	14.21	31.54	138.57	4.94
Fuel Gas Preheaters Total[2]	0.36	0.05	0.16	5.80	0.01
Total Maximum Annual Emissions[2]	78.93	14.26	31.70	144.37	4.95
Increase due to new diesel engines[3]	0.14	0.005	0.004	0.06	0.00
With New Diesel Engines	79.07	14.265	31.704	144.43	4.95

Notes:
[1] From Air Quality Table 19, Revised Staff Assessment (June 2010).
[2] From Air Quality Table 2, Staff Analysis of Proposed Modifications for Project Design Refinements (March 2012).
[3] Based on the parameters listed in Table 2.1-1 and Table 2.0-1.

CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
SO_X = sulfur oxides
VOC = volatile organic compounds

Because the emission increase from the new diesel engines is very small compared to the emissions from the CTGs, the inclusion of the new diesel engines are unlikely to significantly change the overall results of the previous modeling analyses. Therefore it is expected that MLGS will continue to have a less than significant impact on air quality and public health.

Condition of Certification AQ-SC7 references the quantity of ERCs required for the project. Table 2.1-3 shows the quantity of ERCs already provided to offset MLGS emissions as provided in the June 2010 RSA and approved in the August 2010 Commission Decision, as well as the ERCs that NRG Marsh Landing surrendered as part of the 2012 project design refinements. BAAQMD has requested additional ERCs be provided for the small increases in NO_X, VOC, and PM. There is no increase in SO_X emissions from the diesel engines and no additional ERCs are required. ERCs of CO are not required by either CEC or BAAQMD because the project is in an area that is designated attainment for CO.

With these project modifications, potential air quality impacts associated with emissions during operations are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision and the proposed conditions provided in Appendix A.

2.1.1 Greenhouse Gas Emissions

The primary sources of greenhouse gas (GHG) emissions during operation of the MLGS will be the four natural gas-fired combustion turbine generators. The MLGS is a simple-cycle facility that will be limited by the local air district permit conditions to no more than a 20 percent annual capacity factor (BAAQMD 2010). There will be no change in the size, configuration, location or operation of these units; therefore, the estimated GHG emissions associated with the CTGs as presented in the Revised Staff Assessment and approved in the Commission Decision will not change. As shown on Table 2.1-4, the new diesel engines would result in a very minor increase in the total amount of CO_2.equivalents per year if operated at the maximum permitted level (an increase of approximately 10 $MTCO_2E$/yr or approximately 0.001 percent

Table 2.1-3
Marsh Landing Generating Station
Offsets

Source	NO_X	VOC	PM_{10}/ $PM_{2.5}$	CO	SO_X
Offsets required by BAAQMD[1] (August 2010)	90.356	14.21	0.00	0.00	0.00
Offsets required by CEC (August 2010)	78.83	14.23	31.57	0.00	4.96
Offsets Surrendered (August 2010)	90.356	14.23	31.57	0.00	4.96
Additional Offsets Surrendered in Connection with the Preheater Modification (May 2012)	None	0.03	0.13	none	none
Total Offsets Surrendered (as of May 2012)	90.356	14.26	31.70	0.00	4.96
Additional Mitigation Required due to Diesel Engine Modifications[2]	0.16	0.005	0.004	None	None

Notes:
[1] BAAQMD's 2010 FDOC required offsets for NO_X and VOC based on the calculated emissions for the four CTGs only.
[2] Additional offsets recommended by BAAQMD for the new diesel engines.

CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
SO_X = sulfur oxides
VOC = volatile organic compounds

of the total MLGS amount). The estimated annualized greenhouse gas performance would still be approximately 0.60 $MTCO_2$/MWh. As concluded in the Commission Decision, the MLGS is not a base load plant and SB 1368 and the Greenhouse Gas Emission Performance Standard do not apply to the project.

The project design refinements do not substantially increase operational GHG emissions. The project will still be required to comply with mandatory GHG reporting requirement pursuant to the California Air Resources Board's regulations and will be consistent with AB 32 goals and requirements. The project will still foster integration of renewable energy and contribute to reducing total GHG emissions by displacing the need for coal-fired and aging generating resources. Therefore, as concluded in the Commission Decision, the Marsh Landing Project's operational GHG emissions will not cause a significant adverse environmental impact and no Conditions of Certification are required for GHG emissions.

2.2 BIOLOGICAL RESOURCES

As described in AFC Section 7.2, the AFC Amendment and the Commission Decision, no threatened or endangered plant or wildlife species have been observed during biological resource field surveys of the project site. The project modifications are within the 27-acre project site and would not result in any additional disturbed areas beyond the site. Therefore, the project modifications would not change the

Table 2.1-4
Marsh Landing Generating Station
Estimated Potential Greenhouse Gas (GHG) Emissions

Emissions Source	Operational GHG Emissions with Originally Planned Fuel Gas Preheaters ($MTCO_2E/yr$) [a]	Operational GHG Emissions with New Fuel Gas Preheaters ($MTCO_2E/yr$) [a]	Operational GHG Emissions with New Diesel Engines ($MTCO_2E/yr$) [a]
Combustion Turbine Generators (Four CTGs)	756,007	756,007	756,007
Fuel Gas Preheaters	946[c]	2,099[d]	2,099[d]
Diesel Engines	0	0	10[e]
Worker Commutes (Offsite)	143	143	143
Material Deliveries (Offsite)	108	108	108
Equipment Leaks (SF6)	28	28	28
Total Project GHG Emissions, excluding Offsite Emissions ($MTCO_2E/yr$)	756,981	758,106	758,116
Estimated Annual Energy Output (MWh/yr) [b]	1,260,000	1,260,000	1,260,000
Estimated Annualized GHG Performance ($MTCO_2/MWh$)	0.601	0.602	0.602

Source: Greenhouse Gas Table 3 from Revised Staff Assessment (June 2010).

Notes:

[a] One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.
[b] Based on maximum permitted capacity of up to 20 percent annually (URS 2009b).
[c] Based on the originally planned 5 MMBTU/hr preheaters.
[d] Based on the new 8 MMBTU/hr preheaters.
[e] Based on the two new diesel engines described in this document.

$MTCO_2E$ = metric tonnes of carbon dioxide equivalents
$MTCO_2/MWh$ = metric tonnes of carbon dioxide per megawatt-hour

analysis of potential impacts to biological resources previously analyzed by CEC Staff in Section 4.2 of the Revised Staff Assessment, and reviewed and approved by the Commission in Section VI, A of the Commission Decision. Impacts to biological resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision. Thus, the project modifications do not require any changes to the Conditions of Certification to address potential impacts in the area of Biological Resources.

As described in Section 2.1, Air Quality, there would be a very small increase in annual nitrogen oxides emissions from the new diesel engines; however, unlike the MLGS generating units, the diesel engines have no ammonia emissions. The amount of additional NO_X emissions from the new diesel engines is estimated to be 0.14 tpy or an increase of approximately 0.18 percent of the total MLGS NO_X emissions. As such, the additional annual nitrogen deposition at the Antioch Dunes National Wildlife Refuge (ADNWR) due to the new diesel engines would be expected to be small. Condition of Certification BIO-8 requires an annual payment to ADNWR of $2805. As presented in the CEC 2012 Staff Analysis, the annual mitigation payment required by Condition of Certification BIO-8 was increased by $112 from $2,693 to $2,805 which corresponded to an increase in NO_X of 0.10 tpy due to the revised preheaters.

Therefore, NRG Marsh Landing agrees to provide an additional payment to cover the additional increase in NO_X of 0.14 tpy from the new diesel engines. Because the additional NO_x from the new diesel engines is so small, a detailed nitrogen deposition modeling analysis is not warranted; therefore, the additional payment amount is estimated by prorating the additional payment calculated for the 2012 preheater NO_x increase of 0.10 tpy as follows:

$$\$112 \times (0.14/0.10) = \$157$$

Therefore, NRG Marsh Landing will agree to increase the annual mitigation payment from $2,805 to $2,962 per year to ADNWR.

Therefore, while the new diesel engines may slightly increase the nitrogen deposition rate at ADNWR, the change will not modify the existing analysis or conclusions presented in the 2010 RSA or the Commission Decision or in the 2012 Staff Analysis for the project design refinements. With the project modifications, potential impacts associated with nitrogen deposition are still considered to be less than significant. Any concerns about potential impacts would be fully addressed with implementation of the Condition of Certification BIO-8 adopted in the Commission Decision, revised in 2012 (CEC, 2012a; CEC, 2012b and CEC, 2012d) and as described above that includes an annual mitigation payment of at least $2,962, and a voluntary annual payment of $20,000 for weed management efforts at the ADNWR. See Appendix A for proposed minor change to Condition of Certification BIO-8.

2.3 CULTURAL RESOURCES

The project modifications are within the 27-acre project site and would not result in any additional disturbed areas beyond the site. All ground disturbance activities associated with the construction of the new emergency generator and fire suppression system will be in previously disturbed areas of the MLGS project site. As discussed in AFC Section 7.3 and set forth in the Commission Decision, no significant archaeological or historic and architectural (built environmental) resources were identified within the project site or vicinity. Therefore, the project modifications would not change the analysis of potential impacts to cultural resources as described in AFC Section 7.3, the AFC Amendment and the Commission Decision. Impacts to cultural resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

2.4 LAND USE

The project modifications are within the 27-acre project site and do not alter the analysis of potential impacts to land use resources presented in AFC Section 7.4 and set forth in the Commission Decision which found that the project would not disrupt or divide an established community; would not conflict with the established uses of the area; would be consistent with existing zoning and applicable land use plans, policies, and regulations; and would not affect farmlands. Therefore, the project modifications would not change the analysis of potential impacts to land use as described in AFC Section 7.4, the AFC Amendment and the Commission Decision. Impacts to land use are expected to be less than significant with implementation of conditions of certification.

2.5 NOISE

The project modifications, which include the addition of new emergency diesel engines would not result in significant changes to the potential noise emissions during operations that were modeled and presented in the AFC Amendment. Each engine will be located inside an equipment cabinet or small equipment building within the 27-acre project site. In addition, noise abatement will include insulation around the equipment and a muffler on the exhaust pipe. These engines would only be operated for very short periods of time and under emergency conditions. Operational noise impacts are expected to be less than

significant with implementation of the Noise Conditions of Certification adopted in the Commission Decision

2.6 PUBLIC HEALTH

The BAAQMD conducted a health risk assessment for toxic air contaminant emissions from the diesel engines and concluded that the estimated cancer risks at the maximum exposed receptors due to the modified project are still well below the significance criterion and that the project is in compliance with Toxic Best Available Control Technology (TBACT). Therefore, as set forth in the Commission Decision, it is anticipated that the operation of the MLGS including the new diesel engines will pose a less-than-significant health risk to nearby populations with implementation of the Conditions of Certification adopted in the Commission Decision and the permit conditions proposed by BAAQMD (see Appendix A) that limit maintenance and reliability testing of each engine to 50 hours per year or less.

2.7 WORKER SAFETY AND FIRE PROTECTION

The project modifications are within the 27-acre project site and would not change the anticipated workplace hazards or require changes to the safety programs presented in the AFC, the AFC Amendment and set forth in the Commission Decision.

MLGS relies on both onsite fire protection systems and local fire protection services provided by the Contra Costa County Fire Protection Department (CCCFPD). The existing fire suppression system consists of an underground firewater loop connected to the CCGS fire pump. A new fire pump will be installed to service the MLGS. The firewater source will now be City of Antioch water stored in the MLGS Raw Water Storage Tank instead of San Joaquin River water. The modified fire suppression system will achieve the fire protection water supply and pressure requirements in accordance with the California Fire Code, applicable National Fire Protection standards and Cal/OSHA requirements. Marsh Landing, LLC has consulted with the Fire Marshal at CCCFPD. The Project will continue to comply with the Fire Prevention Plan in accordance with Condition of Certification WORKER SAFETY-2.

Potential impacts to worker safety and health are expected to be less than significant with implementation of Conditions of Certification.

2.8 SOCIOECONOMICS

The project modifications do not include any adjustments to the size and locations of covered and enclosed spaces at the MLGS, with the exception of adding the equipment cabinet (approximately 192 square feet) for the diesel emergency engine and the small equipment building (approximately 625 square feet) for the diesel fire pump and associated equipment. The estimated additional square footage of covered and enclosed space at MLGS due to the project modifications addressed in this petition is 817 square feet or an increase of approximately 3 percent (above 22,347.5 square feet as presented in the January 2012 Petition for Approval of Project Modifications).

The Antioch Unified School District (AUSD) has a school development impact fee that is based on the square footage of covered and enclosed space. In accordance with Condition of Certification SOCIO-1, the project owner shall pay the one time statutory school development fee to the AUSD as required by Education Code Section 17620. Therefore, to cover this additional footprint of the buildings/enclosures, NRG Marsh Landing, LLC made an additional payment to AUSD as part of the building/enclosure modifications (817 square feet@ $0.47/square foot = $384). This payment was made on June 6, 2014.

The project modifications to the project are within the 27-acre project site and would not alter the analysis of potential socioeconomic impacts presented in the 2009 AFC Amendment and in the Commission Decision. The analysis concluded the proposed project would not induce substantial growth or

concentration of population; induce substantial increases in demand for public service and utilities; displace a large number of people; disrupt or divide an established community; or result in disproportionate adverse effects on minority or low-income populations. Potential socioeconomics impacts are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

2.9 SOILS

There will be minimal ground disturbance during construction of the emergency generator and fire suppression system. The project modifications are within the 27-acre project site and would not result in increased soil erosion or loss of topsoil and would not alter the analysis of potential impacts to soils as described in the AFC, the AFC Amendment and set forth in the Commission Decision. Therefore, potential impacts to soil resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

2.10 TRAFFIC AND TRANSPORTATION

The project modifications are within the 27-acre project site and would not alter the analysis of potential traffic and transportation impacts presented in the AFC, the AFC Amendment and the Commission Decision including roadway and intersection levels of service during project operation, and potential impacts to transportation networks. Therefore, potential traffic and transportation impacts are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

2.11 VISUAL RESOURCES

The project modifications include addition of two diesel engines as shown on Figure 1. The emergency generator will be inside a small equipment cabinet approximately 12 feet tall and will be located between Units 2 and 3. The fire pump will be inside a small building approximately 14 feet tall and will be located near the Raw Water Storage Tank. These changes will be visually imperceptible when the project is viewed as a whole. This is because the largest features associated with the project (e.g., exhaust stacks and combustion turbine generators) will not be altered as a result of these refinements. Furthermore, neither the emergency generator or fire pump facilities would visually dominate the site, nor would they create a visual point of interest due to their size in relation to the other plant facilities. Therefore, these changes will not modify the existing analysis or conclusions presented in Section 7.11 of the AFC or the AFC Amendment. Therefore, potential visual impacts at all seven key observation points are expected to remain less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

2.12 HAZARDOUS MATERIALS

Hazardous Materials Appendix B in the June 2010 Revised Staff Assessment provides the list of hazardous materials to be used at MLGS. Diesel fuel will now be used for the emergency generator and fire pump engines. Petroleum hydrocarbon-based motor fuels, including diesel fuel, have low toxicity, are low volatility and pose limited offsite hazards. Diesel fuel will be delivered to the MLGS site in Department of Transportation-certified vehicles. The diesel emergency engine will hold approximately 1,100 gallons and the diesel fire pump engine will hold approximately 500 gallons. Standard administrative and engineering controls, such as proper handling and storage with secondary containment, will be implemented to minimize spills.

In accordance with Condition of Certification HAZ-1, NRG Marsh Landing will update the Spill Prevention, Control and Countermeasures Plan and Business Plan to include the new diesel engines.

Diesel fuel will now be included on the list of hazardous materials contained at the site as listed below and will be reported in the Annual Compliance Report.

Addition to Hazardous Materials Appendix B Hazardous Materials Proposed for Use at the MLGS				
Material	Chemical Abstract Service (CAS) Number	Application	Hazardous Characteristics	Maximum Quantity On Site
Diesel fuel	68476-34-6	Fuel for emergency generator and fire pump	Health: Low toxicity Physical: ignitable	1,600 gallons

There are no other changes to the hazardous materials that would be used during operation of the MLGS. Therefore, as described in AFC Section 7.12, the AFC Amendment and set forth in the Commission Decision, potential hazardous materials handling impacts are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

2.13 WASTE MANAGEMENT

The project modifications are within the 27-acre project site and there would be no increases in the types, quantities or frequencies of wastes generated by the project during construction or operation of the MLGS. AFC Section 7.13, the AFC Amendment and the Commission Decision include best management practices that will be implemented during operation of the MLGS to manage and minimize the amount of waste generated. Therefore, potential waste management impacts are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

2.14 WATER RESOURCES

The current CCGS fire suppression system, that also serves MLGS, draws water from the San Joaquin River. With the proposed project modifications, MLGS will no longer connect to the CCGS system, and therefore will no longer use river water for fire suppression. The source of water for MLGS' modified fire suppression system will be City of Antioch water, which is stored in the existing MLGS' 600,000-gallon Raw Water Storage Tank.

Approximately half of the capacity in the existing MLGS 600,000-gallon Raw Water Storage Tank will be used for the fire suppression system (i.e., 300,000 gallons will be reserved strictly for the Fire System). No new water storage tanks are required.

There will be no change in the Project's annual use of water. The initial filling of the tank (300,000 gallons) is only about 1 acre-foot of water. There will be periodic testing of the pumps and flushing of the system, but this will not increase the annual water usage. Therefore, MLGS will comply with Condition of Certification SOIL&WATER-6 that limits the use of City of Antioch fresh water to no more than 50 acre-feet annually.

The project modifications would not result in changes to the analysis of water resources, water quality or flood hazards as described in AFC Section 7.14, the AFC Amendment, Section 4.9 of the Revised Staff Assessment and the Commission Decision. Impacts to water resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision. No changes to the Conditions of Certification are needed to reflect the project modifications.

2.15 GEOLOGIC HAZARDS AND RESOURCES

The project modifications are within the 27-acre project site and would not result in changes to the analysis of geologic hazards or result in significant adverse impacts to the geologic environment. Therefore, as described in AFC Section 7.15, the AFC Amendment and set forth in the Commission Decision, impacts to geologic hazards and resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

2.16 PALEONTOLOGICAL RESOURCES

The project modifications are within the 27-acre project site and do not result in any additional disturbed areas beyond the site. All ground disturbance activities associated with the construction of the new emergency generator and fire suppression system will be in previously disturbed areas of the MLGS project site. Therefore, these refinements would not change the analysis of impacts to paleontological resources as described in AFC Section 7.16, the AFC Amendment and set forth in the Commission Decision. Impacts to paleontological resources are expected to be less than significant with implementation of the Conditions of Certification adopted in the Commission Decision.

3.0 REFERENCES

BAAQMD (Bay Area Air Quality Management District), 2010. Authority to Construct. August.

CEC (California Energy Commission), 2010a. Revised Staff Assessment, Marsh Landing Generating Station. June.

CEC (California Energy Commission), 2010b. Commission Decision, Marsh Landing Generating Station. August.

CEC (California Energy Commission), 2012a. Marsh Landing Generating Station, Staff Analysis of Proposed Modifications for Project Design Refinements. Docket Number 64111. March.

CEC (California Energy Commission), 2012b. Notice of Decision, Marsh Landing Generating Station. Docket Number 65074. May 1.

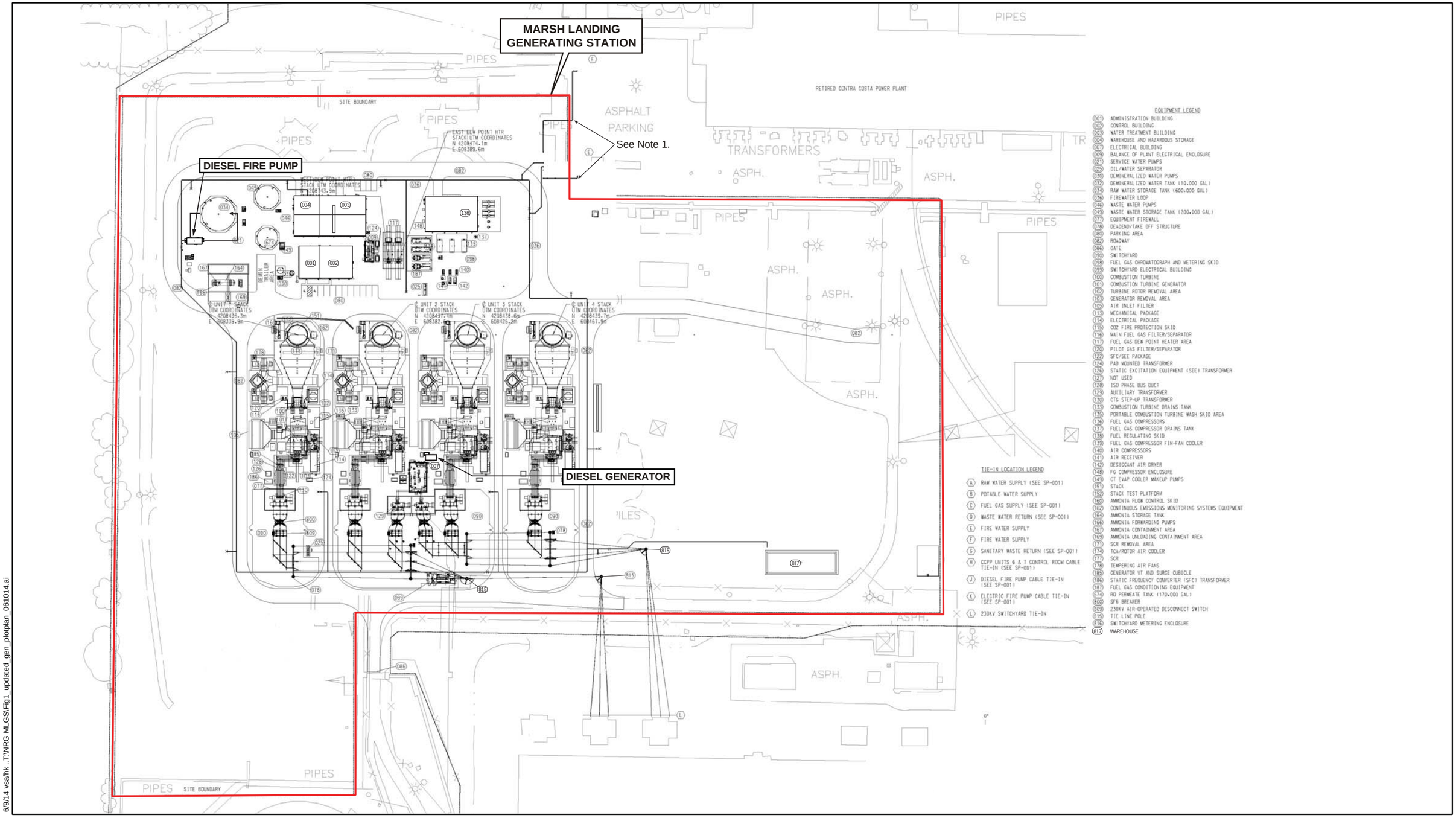
CEC (California Energy Commission), 2012c. Order Approving a Petition to Incorporate Design Refinements Docket Number 65221. May 15.

CEC (California Energy Commission), 2012d. Order Approving a Petition to Modify Condition of Certification BIO-8 Docket Number 68754. December 3.

URS (URS Corporation), 2008. Application for Certification. Marsh Landing Generating Station. May.

URS (URS Corporation), 2009. Application for Certification Amendment. Marsh Landing Generating Station. September.

URS (URS Corporation), 2012. Petition for Approval of Project Design Refinements. Docket Number TN 63551. January.



6/9/14 vsa/hk ...T:\NRG MLGS\Fig1_updated_gen_plotplan_061014.ai

Source:
Kiewit; Genon Marsh Landing LLC, Marsh Landing Generating Station;
Plot Plan; Drawing No. 2009-019-PP-001 (Rev. B, 06-16-11; Rev E, 04-09-13)

Preliminary - Not for Construction

Note:
1. CCGS Fire System Pipes to be capped.

UPDATED GENERAL PLOT PLAN

Marsh Landing Generating Station
June 2014 — NRG Marsh Landing, LLC
28068359 — Contra Costa County, California

URS

FIGURE 1

APPENDIX A
PROPOSED CONDITIONS OF CERTIFICATION

PERMIT CONDITIONS PROPOSED BY BAAQMD

1. The owner/operator shall not exceed 50 hours per year per engine for reliability-related testing.

2. The owner/operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, State or Federal emission limits is not limited.

3. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained.

4. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.

    a. Hours of operation for reliability-related activities (maintenance and testing).
    b. Hours of operation for emission testing to show compliance with emission limits.
    c. Hours of operation (emergency).
    d. For each emergency, the nature of the emergency condition.
    e. Fuel usage for each engine(s).

5. At School and Near-School Operation: If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply:

    The owner/operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:

        a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
        b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session.

    "School" or "School Grounds" means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School" or "School Grounds" includes any building or structure, athletic field, or other areas of school property but does not include unimproved school property.

AMENDED CONDITION OF CERTIFICATION BIO-8

The following Biological Resources condition of certification must be modified to reflect a slight increase in nitrogen deposition at the Antioch Dunes National Wildlife Refuge and the need to pay slightly more than the amount that what was identified in the Commission Decision. The required condition of certification changes are shown in strikethrough and **bold underline**.

BIO-8 The project owner shall provide an annual payment to the California Wildlife Foundation or other third party approved by the CPM in coordination with the USFWS performing similar work to assist in noxious weed management and other activities that benefit state and/or federally protected species, including Lange's metalmark butterfly, Contra Costa wallflower, and Antioch Dunes evening primrose at the Antioch Dunes National Wildlife Refuge. Management activities funded may include but are not limited to: captive breeding and release of Lange's metalmark butterfly; propagation and transplantation of naked-stem buckwheat, Contra Costa wallflower, and Antioch Dunes evening primrose; and noxious weed eradication using grazing animals, hand tools and/or appropriate mechanical equipment. The first annual payment shall be at least equal to ~~$2,805.00~~ **$2,962.00**.

Each subsequent annual payment as calculated above shall be adjusted for inflation in accordance with the Employment Cost Index – West or its successor, as reported by the U.S. Department of Labor's Bureau of Labor Statistics. Payment shall be made annually for the duration of project operation.

The project owner has voluntarily offered to contribute additional annual funding for weed management and other activities that benefit native habitat and species at the Antioch Dunes National Wildlife Refuge in an amount equal to $20,000 per year and has agreed to include that additional payment as a requirement in this condition of certification. The additional annual payment shall be made at the same time as the annual payment specified above and shall be made for the duration of project operation, but shall not be adjusted for inflation.

Verification: No later than 30 days following the start of project operation, the project owner shall provide written verification to the CPM, USFWS, and CDFG that the first annual payment was made to the California Wildlife Foundation or other third party approved by the CPM in coordination with the USFWS performing similar work in accordance with this condition of certification. The project owner shall provide evidence that it has specified that its annual payment can be used only to assist in noxious weed management and other management activities as required under BIO-8 as directed by the USFWS.

Thereafter, within 30 days after each anniversary date of the commencement of project operation, the project owner shall provide written verification to the CPM, USFWS, and CDFG that payment has been made to the California Wildlife Foundation or other third party approved by the CPM in coordination with the USFWS performing similar work in accordance with this condition of certification. This verification shall be provided annually for the operating life of the project. The project owner also shall request an annual report from California Wildlife Foundation or other third-party approved by the CPM in coordination with the USFWS performing similar work documenting how each annual payment required hereunder was used and applied to assist in noxious weed management and other management activities as required under BIO-8 at the Antioch Dunes National Wildlife Refuge. The project owner shall provide copies of such reports to the CPM within thirty (30) days after receipt.

APPENDIX B
LIST OF PROPERTY OWNERS

051 031 015
PACIFIC GAS & ELECTRIC CO
PO BOX 770000
SAN FRANCISCO CA 94177-0001

051 031 016
PACIFIC GAS & ELECTRIC CO
5555 FLORIN PERKINS RD
SACRAMENTO, CA 95826

051 031 017
NRG DELTA LLC
1350 TREAT BLVD #500
WALNUT CREEK CA 94597

051 031 020
NRG DELTA LLC
1350 TREAT BLVD #500
WALNUT CREEK CA 94597

051 031 021
NRG DELTA LLC
1350 TREAT BLVD #500
WALNUT CREEK CA 94597

051 031 005
FORESTAR (USA) REAL ESTATE CO
Bee Cave Rd, BLDG 2-500
AUSTIN TX 78746-5833