CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

DATE: March 5, 2008

TO: Interested Parties

FROM: Donna Stone, Compliance Project Manager

SUBJECT: Roseville Energy Park Project (03-AFC-1C)
Staff Analysis of Proposed Modifications to the Energy Commission Decision on Roseville Energy Park (REP) to Amend NO_x Offsets

On January 24, 2008, Roseville Electric filed a petition with the California Energy Commission to amend the Energy Commission Decision for the Roseville Energy Park (REP) Project. Staff prepared an analysis of this proposed change, and a copy is enclosed for your information and review.

The REP project is a 160 MW, natural gas-fired, combined cycle power plant located in the City of Roseville, Placer County. The project was certified by the Energy Commission on April 13, 2005, and began commercial operation in the fall of 2007.

The proposed modifications will allow the project to use Volatile Organic Compounds (VOC) emission reduction credits (ERCs) for NOx, in a manner previously stipulated in the Final Decision and to operate at the higher permitted NOx emissions limit of 31.09 tons per year (tpy).

Energy Commission staff reviewed the petition and assessed the impacts of this proposal on environmental quality, public health and safety, and proposes revisions to existing conditions of certification for air quality. Changes will be made to existing conditions AQ-4 and AQ-7; a new condition, AQ-9.5 will be added to the conditions of certification. It is staff's opinion that, with the implementation of revised and new conditions, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition and staff's analysis has been posted on the Energy Commission's web page at ***www.energy.ca.gov/sitingcases/roseville/index.html***. The Energy Commission's Order (if approved) will also be posted on the webpage. Energy Commission staff intends to recommend approval of the petition at the April 23, 2008, Business Meeting of the Energy Commission. If you have comments on this proposed modification, please submit them to me at the address below prior to April 10, 2008.

Donna Stone, Compliance Project Manager
California Energy Commission
1516 9th Street, MS-2000
Sacramento, CA 95814

Comments may be submitted by fax to (916) 654-3882, or by e-mail to dstone@energy.state.ca.us. If you have any questions, please contact me at (916) 654-4745.

Enclosure

ROSEVILLE ENERGY PARK (2003-AFC-01C)

Petition to Amend NOx Offsets
Air Quality Staff Analysis
Prepared by: Joseph M. Loyer
March 5, 2008

INTRODUCTION

On January 24, 2008, Roseville Electric (RE) submitted a petition to amend the California Energy Commission Decision on Roseville Energy Park (REP) to modify the oxides of nitrogen (NOx) offsets originally proposed for REP. This petition seeks to modify conditions of certification AQ-6 and -7. These conditions are related to the surrender of emissions reduction credits (ERCs) required to offset or mitigate the project emission impacts of NOx. RE proposes to purchase and surrender volatile organic compounds (VOC) ERCs and trade them for the required NOx offsets for REP.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

No laws, ordinances, regulations or standards will affect the petitioned amendment requests.

ANALYSIS

On April 30, 2005, the Energy Commission issued a license to RE for the operation of REP. Construction commenced soon thereafter and REP began commercial operation in the Fall of 2007. In accordance with the conditions of certification and the Placer County Air Pollution Control District (District) Permit to Operate, RE curtailed operation at REP until the final offsets could be secured. The final offsets were to come from one of two sources; either from the emission reductions resulting from the retrofit of emission controls applied to a landfill gas engine (Energy 2001, which is located approximately four miles from the REP project site, in Lincoln.) or NOx ERCs purchased from the Community Bank in the nearby Sacramento Metropolitan Air Quality Management District (SMAQMD). Unfortunately, neither of these sources ultimately proved to be viable. Therefore, REP has remained at a curtailed level of operation of no more than 23.4 tons per year of NOx emissions, but will be allowed to operate at 31.09 tons per year of NOx emissions after full mitigation has been provided.

LOCAL LANDFILL EMISSION CONTROLS

This emission reduction proposal was to install and operate an ammonia injected selective catalytic reduction (SCR) for a landfill gas-to-energy facility at the Energy 2001 site. The technology needed to perform this task is available from multiple venders. Ammonia-injected SCR systems have been successfully installed on natural gas-fired internal combustion (IC) engines and are considered Best Available Control Technology (BACT) in the South Coast Air Quality Management District. However, high levels (above five ppm) of hydrogen sulfide in the fuel can contaminate these SCR systems. Recent measurements of the landfill gas at Energy 2001 shows approximately 25-30 ppm hydrogen sulfide content. Therefore, in addition to the gas treatment already being

performed at the facility (primarily removing siloxanes and water) to protect the engines, it was necessary to remove the hydrogen sulfide and other impurities from the gas stream to protect the SCR system. However, these additional clean up efforts proved to be infeasible at Energy 2001.

Since Energy 2001 was not able to clean the sulfur contaminates from the landfill gas, an SCR application was determined to be impractical, which eliminated this option as an ERC possibility.

SMAQMD COMMUNITY BANK

There are significant time constraints regarding the filing of an application with the SMAQMD for NOx ERCs from their Community Bank. Ultimately, the SMAQMD Board must find that clean technologies have been used at REP and that the requested amount does not deplete the bank to the extent that there are insufficient credits available for other prospective applicants. The Board may also deny the application if it determines that it is in the best interest of the Sacramento Federal Ozone Non-attainment Area. The term "best interest" is not explicitly defined by the SMAQMD or its Board, however it is taken to mean that any application for the Community Bank credits must not result in a delay of attainment of the federal ozone standards for the Sacramento Area.

To procure the full equivalent of the NOx ERCs proposed to be developed from the Energy 2001 facility retro-fit project, RE requested approximately 16.2 tons of NOx ERCs from the SMAQMD Community Bank. The SMAQMD Board found that this amount would be too difficult to approve while still making their necessary findings, and therefore the application was denied.

CURRENT PROPOSED OFFSETS

RE has purchased VOC ERCs from SMUD (see revised AQ-4 Table under the Proposed Modifications heading in this analysis) and proposes to trade them for the NOx ERCs needed to satisfy the offset requirements of the conditions of certification. This is consistent with the original Commission Decision which allowed for the trading of VOC ERCs for NOx offsets at a 2.6:1 ratio per Placer County Air Pollution Control District's (PCAPCD) rules. Coupling this trading ratio with the PCAPCD distance ratio from Rule 502[1] (1.3:1 in this case), the final ratio is 3.38:1 (which is 2.6 x 1.3). That is, RE must purchase 3.38 lbs of VOC ERCs for each pound of NOx they wish to offset.

RE purchased VOC ERCs from four separate coating operations that have been shutdown: two in Loomis, one in Rocklin and one in Lincoln. These sources were all within 15 miles of the REP project site. AIR QUALITY Table 1 shows the face value of the VOC ERCs from these four certificates.

[1] District Rule 502 governs the use of ERCs, and requires that RE use a Distance Ratio based on the distance from the project site (i.e., REP) and the location of the emission reduction.

AIR QUALITY Table 1
Face Value of Purchased VOC Emission Reduction Credits
(units of pounds, unless otherwise indicated)

Certificate No. (City)	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual Pounds (Annual Tons)
2008-02 (Loomis, Ca)	12,475	12,695	12,573	12,644	50,387 (25.2)
2006-09 (Loomis, Ca.)	1,260	1,260	1,260	1,260	5,040 (2.52)
2007-03 (Rocklin, Ca.)	2,200	470	1,359	924	4,953 (2.48)
2007-06 (Lincoln, Ca.)	431	557	557	475	2,020 (1.01)
Total	16,366	14,982	15,749	15,303	62,400 (31.2)

Using the ratio of 3.38:1, the total VOC ERCs equal 10.7 tons of NOx equivalent ERCs. AIR QUALITY Table 2 shows the NOx equivalent ERCs by quarter from the VOC ERCs purchased.

AIR QUALITY Table 2
NOx equivalent ERCs by quarter from the VOC ERCs purchased
(units of pounds, unless otherwise indicated)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual Pounds (Annual Tons)
Total VOC ERCs (from AIR QUALITY Table 1)	16,366	14,982	15,749	15,303	62,400 (31.2)
NOx Equivalent ERCs at a 3.38:1 ratio	4,842	4,433	4,659	4,528	18,462 (9.23)

STAFF ASSESSMENT OF PROPOSED MITIGATION

AIR QUALITY Table 3 below shows the NOx ERCs needed for REP to operate at it's full expected load equating to 31.09 tons of NOx per year (based on the Commission Decision AIR QUALITY Tables 7b and 7c).

AIR QUALITY Table 3
NOx ERCs Required for the Proposed Higher Emission Limits
(units of pounds, unless otherwise indicated)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual Pounds (Annual Tons)
REP uncurtailed operations (proposed limits)	15,546	13,412	17,646	15,572	62,207.09 (31.09)
REP curtailed operations (current limits)	11,337	7,429	15,646	12,378	46,813.39 (23.39)
Additional Mitigation Needed	4,209	5,983	2,000	3,194	15,394 (7.7)

Source: Commission Decision AIR QUALITY Tables 7b and 7c

Based on AIR QUALITY Tables 2 and 3, RE will have an excess of VOC ERCs that they will bank for potential future use with the District. AIR QUALITY Table 4 shows the amount of VOC ERCs that RE is expected to apply for banking with the District. In order to balance the NOx ERCs per quarter, RE traded 1550 lbs of VOC ERCs from the 3rd quarter to the 2nd quarter (shown in the second row of AIR QUALITY Table 4). The difference in the proposed NOx offsets and the additional NOx offsets needed for REP to operate at the higher emission limits is shown as the "Excess NOx ERCs" row in AIR QUALITY Table 4. The final row in AIR QUALITY Table 4 shows the equivalent VOC ERCs that RE will apply to bank with the District.

AIR QUALITY Table 4
NOx equivalent ERCs by quarter from the VOC ERCs purchased
(units of pounds, unless otherwise indicated)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual Pounds (Annual Tons)
NOx Equivalent ERCs (AIR QUALITY Table 2)	4,842	4,433	4,660	4,528	18,462 (9.23)
Trade NOx ERCs from 3rd quarter to 2nd quarter		1550	-1550		
Proposed NOx Offsets	4,842	5,983	3,109	4,527	18,462 (9.23)
Additional NOx Offsets Needed (AIR QUALITY Table 3)	4,209	5,983	2,000	3,194	15,394 (7.7)
Excess NOx ERCs	633	0	1,109	1,333	3,077 (1.53)
Excess VOC ERCs to be Banked (3.38:1 ratio from excess NOx ERCs)	**2,140**	**0**	**3,748**	**4,506**	**10,394 (5.20)**

Based on this analysis, staff is satisfied that RE has sufficient VOC ERCs to offset and mitigate the REP NOx emission impacts at the higher emission limit proposed.

CONCLUSION

Staff has analyzed the proposed changes and concludes that there are no new or additional significant impacts associated with approval of the petition. Staff concludes that the proposed changes are based on information that was not available during the original licensing process. Staff concludes that the proposed language retains the intent of the original Commission Decision and conditions of certification. Staff recommends the following modifications to conditions of certification AQ-4 and -7 and the addition of condition AQ-9.5.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff has proposed modifications to the air quality conditions of certification as shown in the following paragraphs. (Note: deleted text is in ~~strikethrough~~, new text is **bold and underlined**)

In order to maintain the record of how the REP air emission impacts were to be offset, staff proposes to delete none of the conditions of certification related to the emission reduction credits to be developed at Energy 2001 or the purchase of NOx Community Bank credits from SMAQMD. Given that the number of conditions is unusually large staff proposes to add a new condition relatively near the existing conditions related to offsets for REP. Therefore, staff proposes to number the new condition AQ-9.5.

AQ-4. The ERC certificates to be surrendered if the Alstom turbines are selected shall include the following:

NOx	District/ Certificate	Quarter 1 (lbs)	Quarter 2 (lbs)	Quarter 3 (lbs)	Quarter 4 (lbs)	Annual (Tons)
City of Roseville	PCAPCD/ 2001-23 (2004-03)	5,050	5,050	5,050	5,050	10.1
Calpine Corp.	YSAQMD/ EC-209 (EC-238)	0	6,199	0	3,188	4.69
Calpine Corp.	YSAQMD/ EC-210	0	9,558	0	3,973	6.77
Energy 2001 or SMAQMD Bank		5,300	5,300	5,250	4,150	10.00
VOCs for NOx	District/ Certificate	Quarter 1 (lbs)	Quarter 2 (lbs)	Quarter 3 (lbs)	Quarter 4 (lbs)	Annual (Tons)
SMUD	**2008-02**	**12,475**	**12,695**	**12,573**	**12,644**	**24.19**
SMUD	**2006-09**	**1,260**	**1,260**	**1,260**	**1,260**	**2.52**
SMUD	**2007-03**	**2,200**	**470**	**1,359**	**924**	**2.48**
SMUD	**2007-06**	**431**	**557**	**557**	**475**	**1.01**
City of Roseville	PCAPCD/ 2001-26	33,512	33,512	33,512	33,512	67.0
PM10	District/ Certificate	Quarter 1 (lbs)	Quarter 2 (lbs)	Quarter 3 (lbs)	Quarter 4 (lbs)	Annual (Tons)
City of Roseville	PCAPCD/ 2001-24	2,578	20,167	16,085	15,916	27.37
City of Roseville	PCAPCD/ 2001-22	22,680	-	13,440	22,680	29.40
Enron North America	PCAPCD/ 22001-24 (2004-06)	362	-	420	-	0.39

Verification: The project owner shall submit to the CPM documentation from the PCAPCD showing that all ERCs identified in this Condition have been surrendered as required in Conditions of Certification AQ-5,-6,-7,-8, -9 and **-9.5** if the Alstom GTX100 turbines are selected.

AQ-7. **If the** NOx ERCs listed in the Energy 2001 row ~~may~~ **are** alternatively ~~be~~ obtained in part at or in whole from the Sacramento Air Quality Management District (SMAQMD) Bank at an offset ratio of 2.1 to 1. The offset ratio of 1.3 to 1 shall apply to Energy 2001 offsets. An offset ratio of 2.1 to 1 shall apply to SMAQMD Bank offsets. The combined quantity shall be sufficient to offset the following NOx emissions:

NOx	Quarter 1 (lbs)	Quarter 2 (lbs)	Quarter 3 (lbs)	Quarter 4 (lbs)	Annual (Tons)
	4,077	4,077	4,038	3,192	7.69

Compliance to be determined by the following :

(NOx ERCs Energy 2001 /1.3) + (NOx ERCs SMAQMD Bank /2.1) = Quarterly requirement.

Verification: The project owner shall notify the CPM and PCAPCD in writing in coincidence with the submittal of the necessary application to the SMAQMD for NOx ERCs from the SMAQMD Bank. The notification shall include at a minimum the application submitted to the SMAQMD and the formula herein completed for each quarter and annual total.

AQ-9.5 The project owner may, as an alternative to obtaining emission reduction credits (ERCs) from either the Energy 2001 facility or the Sacramento Air Quality Management District, purchase valid VOC ERCs within the Placer County Air Pollution Control District. The project owner must use an interpollutant trading ratio of no less than 2.6 to 1 (VOC to NOx) and a distance offset ratio consistent with Placer County Air Pollution Control District Rule 502. The project owner must surrender the VOC ERCs from AIR QUALITY AQ-9.5 Table 1 sufficient to offset the project NOx emissions in the amounts shown in AIR QUALITY AQ-9.5 Table 2. The project owner may bank any excess VOC ERCs with the Placer County Air Pollution Control District.

AIR QUALITY AQ-9.5 Table 1
Placer County Air Pollution Control District
VOC Emission Reduction Credits (pounds)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual
2008-02	12,475	12,695	12,573	12,644	50,387
2006-09	1,260	1,260	1,260	1,260	5,040
2007-03	2,200	470	1,359	924	4,953
2007-06	431	557	557	475	2,020

AIR QUALITY AQ-9.5 Table 2
Required NOx Offsets for Project NOx Emissions

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual
Required NOx Offsets	4,842	4,433	4,659	4,528	18,462

Verification: The project owner shall submit to the CPM documentation and all relevant calculations that all ERC certificates identified in this Condition have been surrendered as required.