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BEFORE THE ARIZONA CORPORATION COMMISSION

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Commissioner

Arizona Corporation Commission

DOCKETED

OCT 14 2011

DOCKETED BY *he*

IN THE MATTER OF SALT RIVER
PROJECT AGRICULTURAL
IMPROVEMENT AND POWER DISTRICT
– CERTIFICATE OF ENVIRONMENTAL
COMPATIBILITY AUTHORIZING THE
EXPANSION OF ITS SANTAN
GENERATING STATION

DOCKET NO. L-00000B-00-0105-0000

DECISION NO. 72636

ORDER

**COMPLIANCE FILING –
CONDITION 38 OF CEC**

Open Meeting
October 11 and 12, 2011
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

1. Salt River Project Agricultural Improvement and Power District (“SRP”) is an agricultural improvement district duly organized and existing under Title 48, Chapter 17, Arizona Revised Statutes, and is a political subdivision of the State of Arizona pursuant to Article 13, Section 7 of the Arizona Constitution.

2. In 2000, SRP applied for a Certificate of Environmental Compatibility (“CEC”) authorizing the expansion of its Santan Generating Station (“Santan” or “Santan Plant”). The Santan Plant is located at 1005 South Val Vista Drive, Gilbert, Arizona which is near the intersection of Val Vista Drive and Warner Road in Gilbert, Arizona.

3. On May 1, 2001, the Arizona Corporation Commission (“ACC”) granted the CEC for the Santan Plant expansion, subject to 41 conditions, in Decision No. 63611.

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1 4. Condition 38 required SRP to perform an air emissions assessment of the Santan
2 Plant and to file a report with the ACC every five years that identifies any changes to the plant or
3 the plant's operations that would reduce air emissions.

4 5. Condition 38 also requires the ACC Staff to review the SRP report and issue its
5 findings, including economic feasibility,¹ within 60 days of the SRP report filing.

6 6. Condition 38 further requires that, absent an order from the Commission directing
7 otherwise, SRP shall install the improvements listed in its report within 24 months of filing the
8 review with the Commission.

9 7. The expansion of the Santan Plant was completed in 2006. This is SRP's first filing
10 in compliance with Condition 38.

11 8. On July 1, 2011, pursuant to Commission Decision No. 63611, SRP filed its air
12 emissions assessment report in compliance with Condition 38 of the Santan Expansion Project
13 CEC.

14 9. SRP is requesting a Commission order stating that no additional air emission
15 controls are required at the Santan Generating Station at this time.

16 10. SRP is also requesting that the Commission provide implementation guidance for
17 future reviews to both SRP and Staff because SRP believes that there are ambiguities in
18 Condition 38.

19 11. Santan was originally constructed in the 1970s as a plant with four combustion
20 turbines, totaling approximately 368 MW. Decision No. 63611 approved the Santan Expansion
21 Project with two new units capable of generating 825 MW.

22 12. SRP hired Sargent and Lundy, LLC ("S&L") to conduct the emissions assessment
23 for the Santan Generating Station in order to meet Condition 38. S&L stated that, in its opinion,
24 the current emission controls at Santan are appropriate. S&L recommended no additional new
25 control technologies at Santan at this time.

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28 ¹ Staff did not conduct an independent feasibility analysis but instead reviewed an analysis prepared by Sargent & Lundy, LLC, consultant to SRP.

13. The S&L assessment of nitrogen oxide (“NO_x”) control technology identified three control options which are technically feasible today. They are: (1) combustor upgrades; (2) selective catalytic reduction (“SCR”) system; and (3) SCR system and combustor upgrades. As part of the assessment, S&L conducted an economic evaluation for each of the three NO_x control options. The cost-effectiveness was assessed on a dollar-per-ton removed basis. This analysis was included in Table ES-2 on Page ES-6 of the S&L Assessment Report. A summary of the NO_x Control Evaluation of Units 1-4 is shown below in Table 1.

Table 1. Summary of NO_x Control Evaluation for Units 1-4⁽¹⁾

Control Technology	Total Emissions Reduction (tpy)	Total Capital Cost (\$)	Total Annual O&M Cost (\$/year)	Total Annual Costs (\$/year)	Average Cost-Effectiveness (\$/ton)
SCR + Combustor Upgrades	154.5	\$69,560,000	\$3,802,000	\$11,490,000	\$74,369
SCR	154.5	\$49,612,000	\$3,751,000	\$9,235,000	\$59,773
Combustor Upgrades	103.1	\$19,948,000	\$75,000	\$2,279,000	\$22,104

⁽¹⁾Values presented are combined totals for Santan Generating Station Units 1-4.

14. S&L explained in its report that the average cost-effectiveness of the three NO_x control options for Units 1-4 is high, ranging from \$22,104 to \$74,369 per ton. This cost is so high because the total cost of the control technology is large, but the resulting reduction in emissions is minimal. The reason for this is that the current emissions are extremely low because of the emission control improvements that SRP installed at Santan in the early 2000s and the units’ limited use.

15. S&L conducted a review of publicly available evaluations of emission control cost-effectiveness. S&L found that it is common for permitting agencies² to declare that NO_x control options exceeding \$10,000 per ton of NO_x removed are not considered cost-effective. The least-cost of the three options considered for Santan is \$22,104 per ton for the combustor upgrades. This is over two times the cost of the \$10,000 per ton NO_x limit for cost-effectiveness.

² The permitting agencies and documents used for the analysis are listed in Attachment 8 of the Sargent & Lundy Report.

1 16. The carbon monoxide (“CO”) control technology assessment by S&L listed three
2 technically feasible options. They are: (1) CO catalyst system upgrades; (2) CO catalyst system
3 upgrades and combustor upgrades; and (3) combustor upgrades and existing CO catalyst system.
4 The cost-effectiveness of controls was assessed on a dollar-per-ton removed basis. The summary
5 of the CO Control Evaluation for Units 1-4 was included as Table ES-3 on Page ES-7 of the S&L
6 Assessment. A summary of the CO Control Evaluation is shown below in Table 2.

7 **Table 2. Summary of CO Control Evaluation for Units 1-4⁽¹⁾**

8 Control Technology	Total Emissions Reduction (tpy)	Total Capital Cost (\$)	Total Annual O&M Cost (\$/year)	Total Annual Costs (\$/year)	Average Cost-Effectiveness (\$/ton)
10 CO Catalyst System Upgrades	24.9	\$7,784,000	\$731,000	\$1,591,000	\$63,895
11 CO Catalyst System Upgrades and Combustor Upgrades	24.9	\$27,732,000	\$804,000	\$3,868,000	\$155,341
12 Combustor Upgrades and Existing CO Catalyst System	4.9	\$19,948,000	\$73,000	\$2,277,000	\$464,694

13 ⁽¹⁾Values presented are combined totals for Santan Generating Station Units 1-4.

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16 17. S&L calculates the average annual cost-effectiveness of the three CO control
17 options for Units 1-4 to range from \$63,895 to \$464,694 per ton of CO removed. The cost to
18 remove additional CO is high because the cost of the control technology is substantial and the
19 resulting air emission reductions are minimal. Similar to the case with NO_x controls, the current
20 emissions are extremely low due to the emission control improvements that were made by SRP in
21 the early 2000s and the limited use of the Santan units.

22 18. Permitting agencies often set levels based on which controls are considered cost-
23 effective. S&L conducted a review of publicly available evaluations and S&L concluded that it is
24 common for agencies to consider control options for CO to be “cost prohibitive” at levels above
25 \$4,000 per ton of CO removed. Since the three options identified by S&L cost from \$63,895 to
26 \$464,694 per ton of CO removed, S&L concluded that the three options were cost-prohibitive.

27 19. SRP, in its filing, contends that there are additional reasons why no new emission
28 controls should be required. SRP indicates that the Santan Generating Station is currently

1 operating under an air quality operating permit issued by the Maricopa County Air Quality
2 Department (“MCAQD”). This permit includes separate combined emission limits for Units 5A,
3 5B, and 6. The permit also includes separate combined emission limits for Units 1-4. The permit
4 was issued as part of the Santan Expansion Project.

5 20. As a result of the installation of emission controls on Units 1-4 and the advanced
6 technology use for Units 5A, 5B and 6, the plant’s capacity was increased by the Santan Expansion
7 Project by 825 MW, but resulted in a decrease in total actual plant emissions. Actual emissions of
8 the Santan Generating Station have stayed well below the combined emission limits for all
9 regulated pollutants in the MCAQD permit.

10 21. The NO_x permit limit for Santan is 1,056 tons per year. In 2006-2009, the actual
11 Santan NO_x output ranged from only 118 tons to 172 tons. SRP contends that since actual
12 emissions are well below the permitted limits, there is no need for additional control technology at
13 this time. SRP explains that emissions have already been significantly reduced. In 2000, NO_x
14 from Units 1-4 exceeded 2,000 tons. After SRP installed dry low-NO_x burners, the total emissions
15 of NO_x from Units 1-4 averaged 136 tons per year over the years 2005-2009.

16 22. SRP contends that after oxidation catalysts were installed on Units 1-4 the CO
17 emissions were reduced significantly also. SRP claims that the reduced emission levels are also
18 partially due to the low capacity factors of Units 1-4. SRP says that the capacity factor for Units 1-
19 4 averaged 10.6 percent over the last five years and dropped to 7.5 percent during the last two
20 years.

21 23. SRP claims that “externalities are not implicated” by SRP’s proposal. SRP says
22 that externalities are “often discussed in the context of a decision to build a new power plant.”
23 SRP believes that “SRP’s proposal does not have any associated externalities since no changes at
24 the Santan Generating Station are recommended at this time.”

25 24. SRP included in its application charts that demonstrate that the NO_x emissions from
26 Units 1-4 are less than 0.1 percent of total Maricopa County emissions and the CO emissions for
27 Units 1-4 are less than 0.01 percent of total Maricopa County emissions. SRP concludes that the
28 ...

1 control options considered in the S&L report are, therefore, very unlikely to have any measurable
2 impact on Maricopa County's air quality.

3 25. SRP presented the S&L report to the local Santan Neighborhood Committee
4 ("Committee") and is comprised of representatives from the Arizona Department of Health
5 Services, Maricopa County Air Quality Department, the Town of Gilbert, adjacent homeowners
6 associations (Cottonwood Crossings, Finley Farms South, Rancho Cimarron, Silverstone Ranch
7 and Western Skies), the county island near SGS and a resident of Gilbert who is a registered
8 professional engineer. The Committee was formed as a condition of the Santan Expansion Project
9 CEC. The Committee issued a letter supporting the S&L recommendations that SRP not be
10 required to install additional air emission controls at this time.

11 26. In its filing, SRP requests guidance from the Commission related to the future
12 implementation of Condition 38. SRP questions whether the deadlines are feasible and how the
13 compliance process should work.

14 27. Condition 38 states:

15 *Beginning upon commercial operation of the new units, Applicant shall*
16 *conduct a review of the Santan Generating facility operations and*
17 *equipment every five years and shall, within 120 days of completing such*
18 *review, file with the Commission and all parties in this docket, a report*
19 *listing all improvements which would reduce plant emissions and the costs*
20 *associated with each potential improvement. Commission Staff shall review*
21 *the report and issue its findings on the report, which will include an*
22 *economic feasibility study, to the Commission within 60 days of receipt.*
23 *Applicant shall install said improvements within 24 months of filing the*
24 *review with the Commission, absent an order from the Commission*
25 *directing otherwise.*

26 28. SRP claims that, absent an order from the Commission, there is no clear guidance
27 for SRP about which technologies to install. Further, lacking clear guidance, duplicative or
28 inconsistent technologies could be required to be installed.

29 SRP notes that Condition 38 requires the installation of the controls within 24
30 months of filing the report with the Commission. SRP contends that meeting the 24-month
31 deadline is not possible considering the time for permitting, acquisition of equipment and other
32 requirements.

1 30. SRP described, in its application, the time delays related to 45-day EPA review
2 periods, 30-day public notice periods and revisions that can take over a year to complete. SRP
3 mentions that, due to the recent economic downturn, the air quality permitting staff at MCAQCD
4 has been reduced significantly. SRP also suggests that work on the unit might have to be staged
5 due to the need to have the units available during certain critical peak periods.

6 31. SRP also mentions that Condition 38 does not specify if the review period would
7 continue based on the date Units 5 and 6 were put into service or on a new date based on the in-
8 service date of the new control devices. SRP would prefer the latter option.

9 32. SRP is requesting that the Commission approve an order that establishes the
10 following procedure for future five-year reviews:

- 11 • Installation of any emission controls would only be required 48 months after an order
12 issued by the Commission identifying the specific air emission controls and directing
13 their installation, and
- 14 • In the event that new controls or a new operating methodology is required, the in-
15 service date of any new control technology or operating methodology will be the
16 effective date for the next five-year review period.

17 33. In its filing, SRP says that externalities are “often discussed in the context of a
18 decision to build a new power plant.” Staff agrees that this is correct, but that does not mean that
19 an analysis of externalities should be excluded from the economic analysis and decision of whether
20 or not to add new emission controls to existing power plants. In fact, Staff believes that the
21 externalities of power plant operations should be an integral part of such an economic analysis.

22 34. Therefore, Staff disagrees with SRP’s assertion that “SRP’s proposal does not have
23 any associated externalities since no changes at the Santan Generating Station are recommended at
24 this time.”

25 35. When conducting a cost-benefit analysis of the possible addition of new emission
26 controls, it is not enough to merely consider the “cost” portion of the equation and forget the
27 “benefit” portion which includes the benefits to society of eliminating the externality costs of the
28 tons of emissions to be removed by the proposed emission controls that are being evaluated.

...

1 36. Staff recommends that the Commission order that in future SRP reviews of the
2 Santan Generating facility, SRP should incorporate the monetized value of all externalities that
3 would be eliminated due to new emissions controls that are being evaluated in response to
4 Condition 38 in the benefits portion of the cost-benefit analysis. SRP should use nationally
5 recognized values for the monetized externality costs of pollutants coming from Santan.

6 37. Staff has reviewed the study completed by S&L. Staff concurs with S&L and SRP
7 that the current emission controls at Santan are appropriate and that no new control technologies
8 are appropriate at this time.

9 38. Staff notes that the two newest units, Units 5A, 5B and 6 already contain the best-
10 state-of-the-art controls that would apply for a new plant today. Staff also agrees with S&L and
11 SRP that there is no need for any changes to fuel storage tanks, abrasive blasting equipment,
12 emergency engines, or cooling towers. Finally, Staff agrees that there is no need for upgrades of
13 Units 1-4 because any costs of such upgrades would be significantly greater than any benefits.

14 39. Staff has reviewed SRP's concerns about guidance for future implementation of the
15 requirements of Condition 38. Staff concurs with SRP's proposed procedure for future five-year
16 reviews, with minor wording modifications, and recommends that the Commission adopt SRP's
17 proposed procedure as modified in the order issued relative to this matter.

18 40. Staff has recommended that Condition 38 be modified to read as follows:

19 Beginning upon commercial operation of the new units, Applicant shall conduct a
20 review of the Santan Generating facility operations and equipment every five years
21 and shall, within 120 days of completing such review, file with the Commission and
22 all parties in this docket, a report listing all improvements which would reduce plant
23 emission and the costs associated with each potential improvement. Commission
24 Staff shall review the report and issue its findings on the report, which will include
25 an economic feasibility study, to the Commission within 90 days of receipt.
26 Applicant shall install said improvements within 48 months after an order issued by
27 the Commission identifying the specific air emission controls and directing their
28 installation. In the event that new controls or a new operating methodology are
required, the in-service date of any new control technology or operating
methodology will be the starting date for the next five-year review period. If no
new operating methodology is required, the starting date for the next five-year
review period shall be the effective date of the Commission's decision regarding the
previous five-year review report.

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1 response to Condition 38 into the benefits portion of the cost-benefit analysis. Salt River Project
2 Agricultural Improvement and Power District shall use nationally recognized values for the
3 monetized externality costs of pollutants coming from Santan.

4 IT IS FURTHER ORDERED that all other provisions of Decision No. 63611 remain in full
5 force and effect.

6 IT IS FURTHER ORDERED that this Decision become effective immediately.

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8 **BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION**

9 
10 CHAIRMAN


10 COMMISSIONER

11 
12 COMMISSIONER


13 COMMISSIONER


13 COMMISSIONER

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15 IN WITNESS WHEREOF, I, ERNEST G. JOHNSON,
16 Executive Director of the Arizona Corporation Commission,
17 have hereunto, set my hand and caused the official seal of
18 this Commission to be affixed at the Capitol, in the City of
19 Phoenix, this 14th day of October, 2011.

20 
21 ERNEST G. JOHNSON
22 EXECUTIVE DIRECTOR

23 DISSENT: _____

24 DISSENT: _____

25 SMO:RTW:lhм\CH
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