

VOLUME FIVE
DRAFT REPORT REVIEW COMMENTS AND RESPONSES

**SOUTHERN CALIFORNIA ACCELERATED
RAIL ELECTRIFICATION PROGRAM**

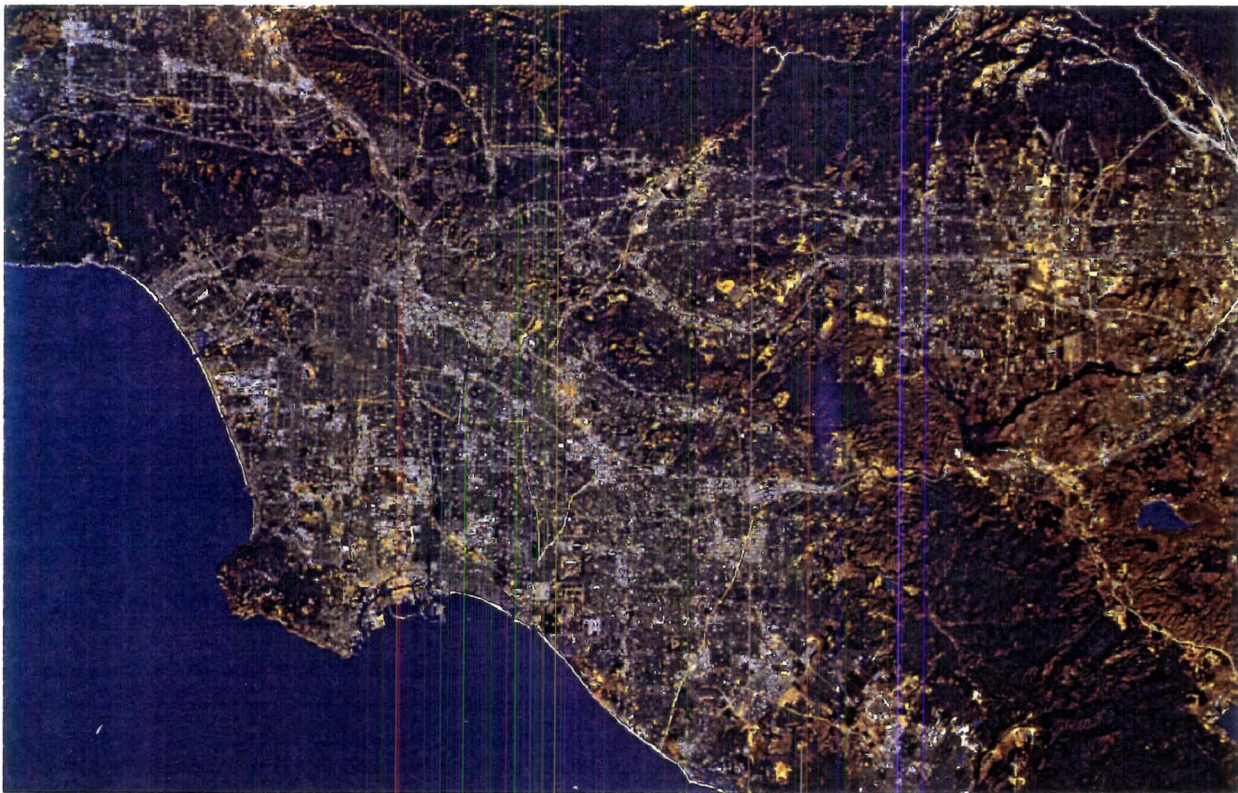


PHOTO BY SPACESHOTS INC.

Prepared for

Southern California Regional Rail Authority

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May 8, 1992

VOLUME FIVE
REVIEW COMMENTS AND RESPONSES

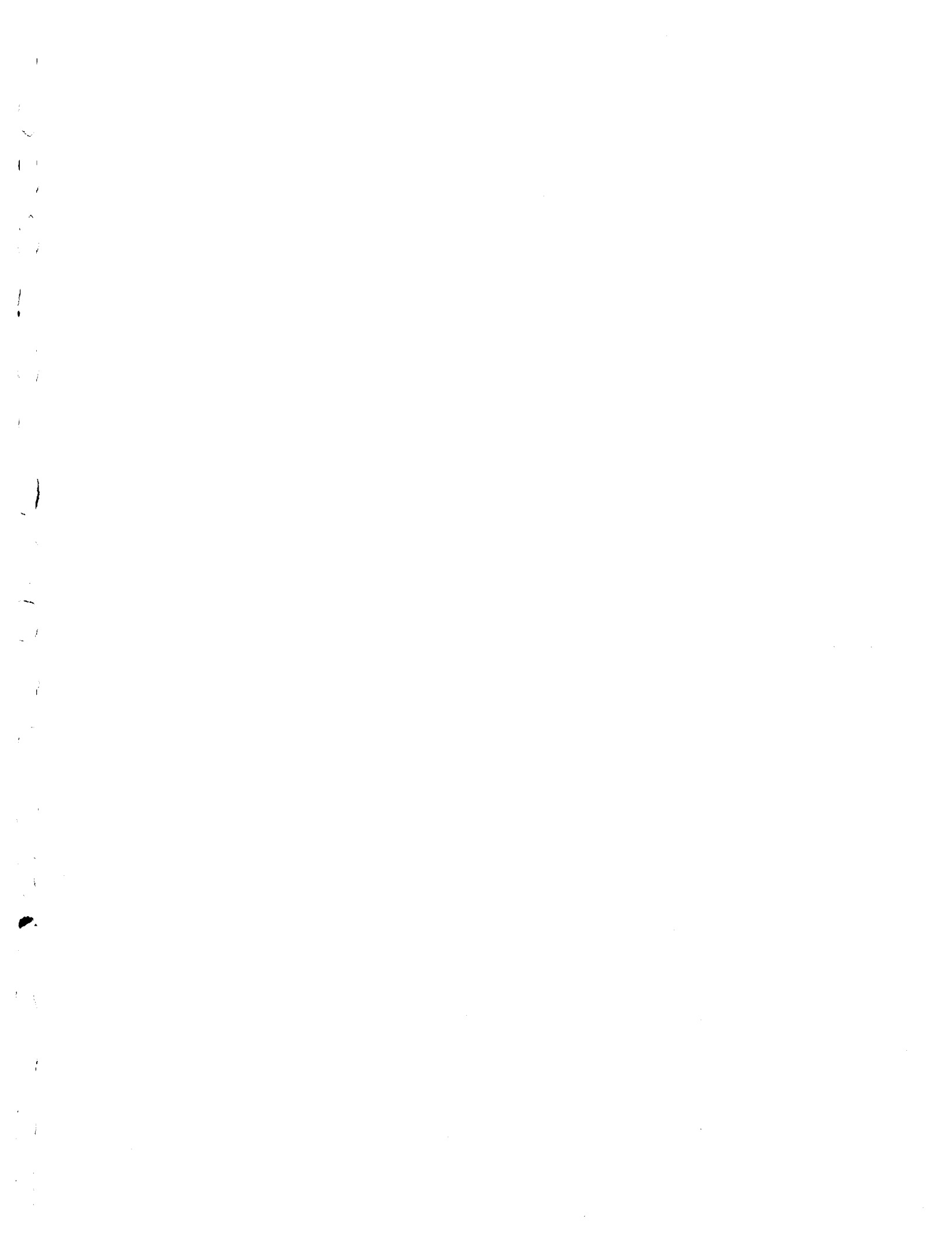
Volume Five contains copies of all review comments submitted in response to the draft Executive Summary and Volumes One and Two of the Southern California Accelerated Electrification Program Report, distributed on February 10, 1992. Comments were received from the organizations identified on the following page in the order shown. For each organization, a summary sheet is provided which notes the comment number, the response to the comment and any additional information necessary to clarify the comment.

To the extent applicable, many comments were reflected in the final version of the Executive Summary, distributed concurrently with this Volume. Where a comment is applicable only to Report Volumes One and Two, which will remain in draft form, or if significant disagreement remains, it is so noted on the contract summary sheet.

COMMENTS REVIEWED FROM:

NO.	ORGANIZATION NAME
1	Southern California Edison
2	Coalition for Clean Air
3	Caltrans
4	Natural Resources Defense Council
5	Southern California Association of Governments
6	Federal Railroad Administration (USDOT)
7	North County Transit District
8	California Public Utilities Commission
9	Atchison, Topeka & Santa Fe Railway Co.
10	San Diego Association of Governments
11	South Coast Air Quality Management District
12	Union Pacific Railroad
13	Southern California Gas Company
14	California Air Resources Board
15	City of Anaheim, Public Utilities Department
16	Orange County Transportation Authority
17	Southern Pacific Transportation Company

1 – SOUTHERN CALIFORNIA EDISON



**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA EDISON**

Comment/Ref. No.	Disposition	Comments
1	D	Partially incorporated in Executive Summary
2	D	
3	E	Comparison to BR invalid
4	E	Agree with comments
5	E	
6	A	
7	A	SCE included in participants list
8	A	
9	D	Exhibits ES-2 and ES-3 not moved
10	E	Air Analysis should be consistent with System Configuration
11	E	Prioritization should not be based solely on Air Quality benefits
12	A	
13	A	
14	A	
15	C	
16	A	Exhibits revised
17	E	
18	E	
19	D	Language modified
20	E	Comparison to BR invalid

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA EDISON (Continued)**

Comment/Ref. No.	Disposition	Comments
21	A	
22	D	Clarification provided in Executive Summary
23	A	
24	E	
25	C	Dates added
26	A	
27	A	
28	A	
29	A	
30	A	
31	A	
32	E	
33	A	
34	A	
35	A	
36	B	
37	B	
38	B	
39	B	
40	B	
41	B	
42	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA EDISON (Continued)**

Comment/Ref. No.	Disposition	Comments
43	B	
44	B	
45	B	
46	B	
47	B	
48	B	
49	B	
50	B	
51	B	
52	B	
53	B	
54	B	
55	B	
56	B	
57	B	
58	B	
59	B	
60	B	
61	B	
62	B	
63	B	
64	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
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**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA EDISON (Continued)**

Comment/Ref. No.	Disposition	Comments
65	B	
66	B	
67	B	
68	B	
69	B	
70	B	
71	B	
72	B	
73	B	
74	B	
75	B	
76	B	
77	B	
78	B	
79	B	
80	B	
81	B	
82	B	
83	B	
84	B	
85	B	
86	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
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**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA EDISON (Continued)**

Comment/Ref. No.	Disposition	Comments
87	B	
88	B	
89	B	
90	B	
91	B	
92	B	
93	B	
94	B	
95	B	
96	B	
97	B	
98	B	
99	B	
100	B	
101	B	
102	B	
103	B	
104	B	
105	B	
106	B	
107	B	
108	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
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**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA EDISON (Continued)**

Comment/Ref. No.	Disposition	Comments
109	B	
110	B	
111	B	
112	B	
113	B	
114	B	
115	B	
116	B	
117	B	
118	B	
119	B	
120	B	
121	B	
122	B	
123	B	
124	B	
125	B	
126	B	
127	B	
128	B	
129	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

Southern California Edison Company

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ROSEMEAD, CALIFORNIA 91770

DEEPAK NANDA
MANAGER, ADVANCED MASS TRANSIT

TELEPHONE
(818) 302-2632

March 16, 1992

Mr. Norman Jester
Project Manager
Southern California Regional Rail Authority
818 W. 7th Street, 7th Floor
Los Angeles, California 90017

Subject: Comments on the draft
Rail Electrification Report

Dear Mr. Jester:

Thank you for giving us an opportunity to comment on the subject report. Edison's comments are shown in the attachment. These comments are in addition to the comments provided to you earlier.

Please feel free to call me if you need any further clarification on the comments.

Very truly yours,



DEEPAK NANDA

Enclosure

COMMENTS PREVIOUSLY SUBMITTED

1

The executive summary emphasizes the negative aspects of rail electrification and downplays the positive. To correct this imbalance, the following paragraphs, which incorporate conclusions from the Task Force Study, is a preferred opening for the report.

The rail system in Southern California is one of the largest NOx contributors (approximately 3% of the total of 1200 tons/day) in the South Coast Basin. These emissions are comparable to those of power plants and oil refineries. Rail electrification represents a very cost effective method of cleaning up the South Coast Basin (\$6300 per ton on average). Additionally, electrification provides other benefits, such as noise reduction, higher average speed, lower maintenance cost, greater public acceptability and proven state-of-the-art commuter rail technology.

It is in the public's interest to establish funding for accelerated rail electrification, including participation of private and municipal utilities, funds from the new Federal Transportation Act, emission trading credits, and new taxi and rental car taxes. An accelerated implementation of rail electrification will benefit all citizens of Southern California through the development of a world-class modern railway system that meets the much needed goals of clean air and increased mobility for Southern California.

The Rail Electrification Report has the following fundamental problems:

2 Air Quality Benefits

The report deemphasizes the air quality benefits of rail electrification in Southern California. The rail system in Southern California is one of the largest NOx contributors (approximately 3% of the total or 11,000 tons/year) in the South Coast basin. These emissions are comparable to those of power plants and oil refineries. The Executive Summary (Summary) should state that rail electrification is both a practical and cost-effective control strategy, which will result in significant reductions in NOx emissions. The Summary should further state that the air quality analysis demonstrates that by no later than 2010 and at a cost of about \$6300 per ton of NOx reduction, locomotive emissions could be reduced by 76%, or 27 tons/day. This translates into an annual reduction in NOx emissions of over 9800 tons.

3 Estimated Costs:

The report establishes cost estimates that Edison believes are thirty percent too high. Rail electrification projects like the British Rail's London to Edinburgh project have been built at cost significantly lower than those estimated in the Report. Edison believes that its expertise in construction of electric facilities should also help reduce costs. Finally the cost of electrification, as indicated in the report, is based on very preliminary assumptions because only about five percent of the engineering is complete. The cost estimate should be refined following completion of the preliminary engineering phase.

4 Funding Availability:

In light of the significant air quality benefits of rail electrification, the Report should place greater emphasis on the utilization of funds from the new Federal Transportation Act. Also funding from other sources should be pursued including taxicab, rental car, and road use taxes,

and emission credits, and trading program. Southern California Edison repeatedly stated in task force meetings that it would consider financial participation in only the portions of the rail system that supply the electricity, and only to the extent that such an investment was in the best interest of ratepayers. Yet the draft report lays out an option that Edison ratepayers could fund 100 percent of the cost of the rail system, including locomotives. That has never been an option.

5 Other Societal Benefits: The report does not emphasize other societal benefits of rail electrification such as increased average speeds, reliability, lower maintenance and operating costs, and a reduction in oil dependence.

6 Finally, the Summary gives the impression that a consensus was reached by the various Task Force committees and members on the conclusions of the studies. This is not the case as illustrated by the "Disclaimer" statement contained in the Summary, which was requested by several steering committee members.

SOUTHERN CALIFORNIA EDISON COMMENTS
ON THE
DRAFT EXECUTIVE SUMMARY

<u>PAGE</u>	<u>SECTION</u>	<u>COMMENT</u>	
7	Prepared by:	List consultants only. Delete reference to Southern California Edison.	
8	Disclaimer	Move disclaimer from back of report. Place before "Executive Summary" title page	
9	ES-1	The AQMP goal of 17% electrification by the year 2000 should be noted. Also, although stated in paragraph 2, there were no conclusions reached by the Task Force. In addition, San Diego Gas & Electric and the environmental groups should be included in the participants. Delete "overwhelming majority" in the last paragraph; further study is needed. Exhibits ES-2 and ES-3 should be moved to the Appendices.	
10	ES-3	Cost	The 806 route miles includes over 100 miles outside the SCAQMD boundaries. Costs and benefits should be consistently analyzed and compared for the Basin only.

commuter locomotives begun in 1992 (retarded injection timing, etc.), a 30% NO_x reduction in freight locomotives in 1995, and a fleet turnover to cleaner locomotives.

SCAQMD confirmed that electric locomotives are about 98% cleaner than diesel for all pollutants, and that rail electrification is very cost effective (6,300 per ton of NO_x reduced overall). SCAQMD found that diesel commuter trains will increase NO_x by 2 tons per day in 2010 (3.5 tons per day with a mature system) even considering the car trips they will replace.

SCAQMD all found that if trains are not controlled, they will equal about 10% of the total remaining NO_x (37 t/d out of 374 t/d), and they will have to find other sources to control in order to meet the federal and state ozone standard.

15 ES-6 Legal/Legislative

Delete last paragraph "Delaying implementation...and/or the state." This was not a finding.

- 16 ES-8 Exhibit ES-5 It is recommended that the 3 attached Exhibits be included to better illustrate the air quality text.
- 17 ES-10 Exhibit ES-7 Add UP-SP Consolidated Freight Corridor.
- 18 ES-12 For clarity, Table ES-2 should have one column for commuter only and one column for freight only.
- 19 ES-13 Delete last sentence "All of these parties....estimated unit costs".
- 20 ES-17 The Executive Summary presents cost estimates (Table ES-6) that Edison believes are thirty percent too high. Rail electrification projects like the British Rail's London to Edinborough project have been built at a cost significantly lower than those estimated in the Summary. Edison believes that its expertise in construction of electric facilities should also help reduce costs. Also, the cost of electrification, as indicated in the summary is based on very preliminary assumptions because only about five percent of the engineering is complete. The cost estimate should be refined following completion of the preliminary

engineering phase. Additionally the route miles for the freight operations should be finalized by negotiations with the railroads.

21 ES-20

Change Table ES-8 as shown in Attachment A.

22 ES-20 Funding

The Funding Analysis and Funding Alternatives sections of the Report and its Executive Summary do not make clear the fact that the transportation agencies in southern California presently have sufficient funds to accomplish commuter rail electrification without new sources of funding, provided commuter rail electrification is given a higher priority than other projects.

As an alternative, SCE rate basing may provide a potential source of funding, but at a cost to the residents of southern California which is significantly higher because of the need to generate a return and the requirement to pay taxes. The SCE rate basing scenario has been presented as the most viable source of funding without the significant qualification that rail electrification must prove to be beneficial to and in the best interest of SCE's customers. As such, SCE rate basing should be listed only

as a potential source of funding. Also, any utility participation must be equitably allocated among all utilities based on the benefits to each.

Commuter rail electrification should not be dependent on a base of utility funding, but should be justified and given a high priority based on the significant public benefits provided. Once it has been determined that these benefits justify the expense, all sources of funding should be pursued, including emission permits, road use fees, utility rate basing or taxes, and new taxes, all justified by the public benefit.

- 23 ES-21 Utility Financing Utility financing is a potential source not a "primary" source.
- 24 Public Agency Financing Additional funding sources should be noted such as taxicab, rental car and truck fees along with advocating CARB's effort in emission credits and marketable permits.
- 25 ES-24 Resolution of policy issues Add dates to the first two items. Delete "Based on the results of this report" from the

3rd item and add "with a specified schedule for electrification" to the last item.

NEW COMMENTS
(3/16/92)

EXECUTIVE SUMMARY

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Page No.	Doc. Section No.	Comments by Reviewer	Response/Action	
26	ES-6	Key Findings	Paragraph One – FUNDING – Revise to read – . . . Rate based utility financing, if regulatory approval can be obtained, may spread <u>a portion of the cost to utility</u> customers.	Delete “CPUC” and revise as shown.
27	ES-6	Key Findings	REGULATORY – Add footnote – “Although Arizona Public Service (APS) has been identified as an investor-owned utility, the regulatory requirements for APS to participate in rail electrification have not been addressed in this report.”	Add footnote.
28	ES-20	Regulatory Requirements	Revise to read – “Identification of the affected utilities <u>by candidate routes</u> . . .”	Revise as shown.
29	ES-20	Regulatory Requirements	Revise to read – “. . . would apply for authority to <u>participate</u> in the rail electrification infrastructure and recover their investment through rates.”	Delete “invest” and add “participate”
30	ES-21	Utility Financing	Revise to read – “SCE could apply to the CPUC for approval to <u>participate</u> . . .	Replace “invest” with “participate”
31	ES-21	Utility Financing	change “. . . rate Basing . . .” with capital “B” to lower case.	Lower case “basing” through entire document

EXECUTIVE SUMMARY

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
32	ES-23	Table ES-9 Why do these scenarios only address SCE rate scenarios? Why not SDG&E and municipals as well?	Include municipals and SDG&E in Table ES-9.
33	ES26	Table ES-10 REGULATORY APPROVALS - Revise to read - "Determine which elements of project <u>could be . . .</u> "	Add "could be".
34	ES-27	Investor and municipal-owned utilities " . . . determine elements <u>that could be . . .</u> "	Add "that could be".
35	ES-27	Investor and municipal-owned utilities Revise to read - "Prepare and submit applications for <u>utility participation and determination of eligibility for . . .</u> "	Add phrase as shown.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
36	Vol. 1 & Vol. 2	General	The report is too directly focused on "SCE's Application" and "SCE's Rate Base." The change of the task was to look at all funding sources and discuss them. While SCE is one option, the other should be more thoroughly developed and examined. SDG&E is not mentioned prominently. 75 miles of the Lossan Corridor is in their area. They should be included and municipal involvement expanded. "Utility financing" is too narrowly defined as "Edison financing"—including the three financial scenarios that defined the entire funding analysis.	Revise report.
37	Vol. 1 & Vol. 2	General	Their report suggests that SCRRA, the utilities, and the railroads can determine what will be eligible for rate treatment. Only the CPUC determines eligibility. SCE can only determine what will be included and supported in its application.	Revise report.
38	Vol. 1	General	Air quality is the critical issue to this report. Air quality issues are not discussed in sufficient detail. The SCAQMD report summary should be included as a minimum.	Add an air quality section to the report.
39	Vol. 1	Prepared by	List consultants only.	Delete reference to Southern California Edison.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
40	Vol. 1	Disclaimer	Disclaimer should be in front of the document.	Move disclaimer to front of document.
41	Vol. 1	1-3	1.2 Paragraph 2-, The reference to Robert Dietch does not correctly portray the meaning of his statement.	Delete the following sentence: "More importantly he discussed the possibility of distributing the capital cost of electrification to Southern California Ratepayers". Add in its place: "More importantly, he discussed various options for financing commuter rail electrification, including public funding, private funding, utility ownership of some or all of the electrification infrastructure, emissions trading credits, and other similar funding sources."
42	Vol. 1	1-4	1.3.2 Table 1-1, Item 6 – Funding is not complete. Rate basing is only one potential source of funding.	Other funding sources should be included such as transportation agency funding. Change Table 3-5 accordingly.
43	Vol. 1	1-4	1.3.2 Table 1-1, Items 3f and 3g different than Table 3-5 Items 3f and 3g.	Correct to make tables consistent.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

	Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
44	Vol. 1	1-5	1.3.3	Paragraph 3 — "All of these parties generally concurred. . . estimated cost units." All parties did not agree as it was never defined what was included in the unit costs.	Delete "All of these parties . . . cost units". Add a sentence listing the components of unit costs. Mobilization, change orders, etc., are normally part of the unit costs.
45	Vol. 1	1-5	1.3.3	Paragraph 4, last sentence – Edison's add-on cost estimates are based on industry standards.	Add a sentence to state that "Edison's add-on cost estimates are comparable to the industry standards."
46	Vol. 1	1-6	1.3.5	It is not clear if the alternative fuels will be limited to the applications discussed in this section.	Change second sentence to ". . . would be applicable only to those railroad operations . . ."
47	Vol. 1	1-6	1.3.6	First item needs a phrase to point out that mileage data is presented for each candidate route.	Change first sentence to "Identification of the affected utilities <u>by candidate route</u> . . ."
48	Vol. 1	16	1.3.6	Second bullet item needs revision to properly portray process.	Change the third line from ". . . would apply for authority to invest in the rail . . ." to ". . . <u>would apply to their governing board for approval to participate in the rail</u> . . ."

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

	Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
49	Vol. 1	2-1	2.1	Title of Candidate Route 4 is Santa Clarita Line on pages 2-1 and 2-4 but it is referenced to as the Saugus Line on pages 10-1 and Map 4 in Chapter 10.	Change route name to make consistent throughout the text.
50	Vol. 1	2-1	2.1	Mileages for Candidate Routes 1, 3, and 5 differ on page 2-1 from those presented on pages 2-4 and 10-4.	Change route miles to make consistent with page 10-4.
51	Vol. 1	3-8	3.3.1.1	Table 3-3, R T Trains per Day - No explanation is given for the numbers in the brackets.	Add an explanation to the legend.
52	Vol. 1	3-8	3.3.1.1	Table 3-3 should include a range of \$/ton reduction based on data presented in Table 11-6 on page 11-17, Vol. 2.	Revise Table 3-3.
53	Vol. 1	3-8	3.3.1.1	Table 3-3 should include an overall cost-effectiveness number (\$/ton) for all the lines. Edison believes that the cost-effectiveness estimates should be based on a "system-wide" approach rather than on a line-by-line segment approach. The system approach is now used by the SCAQMD in all other cost-effectiveness estimates for rule-making and should be used in this study.	Revise Table 3-3.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

54	Vol. 1	3-9	3.3.1.1	The Criterion 2 – Air Quality Cost-Effectiveness Section should mention that Edison believes the capital costs would be about \$2.5 million per mile versus the \$4.5 million per mile consultant estimate.	Add a sentence explaining Edison's position.
55	Vol. 1	3-9	3.3.1.1	Criterion 2 – next to the last line – what is the source of "AQMD threshold of roughly \$30,000 per ton"?	Give reference for the source.
56	Vol. 1	3-9	3.3.1.1	Table at the bottom of the page should include the range of cost estimated on Table 11-6 on page 11-17, Vol. 2.	Revise the table.
57	Vol. 1	3-9	3.3.1.1	This table should include an overall cost-effectiveness number (\$/ton) for all the lines. Edison believes that the cost-effectiveness estimates would be based on a "system-wide" approach. The system approach is now used by the SCAQMD in all other cost-effectiveness estimates for rule-making and should be used in this study.	Revise the table.
58	Vol. 1	3-10	3.3.1.1	Criterion 3 – Transportation Cost-Effectiveness should include a comparison of cost/passenger-mile for other transit projects such as the Blue and Green Lines. This addition would provide a useful reference number to the reader.	Make addition to text.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
59	Vol. 1 3-17	3.3.1.1	Ranking Table – The Environmental committee did not calculate emissions for the Consolidated Corridor; therefore, it should not be included in the ranking. We believe it is misleading to include the Consolidated Corridor in the ranking at this time because much of the data used to rank the other lines are not yet available for the Consolidated corridor.	Delete the last two sentences in the first paragraph: “Data on the Consolidated Corridor . . . based on estimated locomotive miles.”
60	Vol. 1 3-18	3.3.1.1	Table 3-5 should include the range of cost data presented in Table 11-6, page 11-17, Vol. 2.	Add data to Table 3-5.
61	Vol. 1 3-18	3.3.1.1	Table 3-5 should not include the Consolidated Corridor since no air quality or environmental analysis was conducted for the Corridor.	Delete Consolidated Corridor from Table 3-5.
62	Vol. 1 3-18	3.3.1.1	Table 3-5 should include an overall cost-effectiveness number (\$/ton) for all the lines. Edison believes that the cost-effectiveness estimates would be based on a “system-wide” approach. The system approach is now used by the SCAQMD in all other cost-effectiveness estimates for rule-making and should be used in this study.	Revise Table 3-5.
63	Vol. 1 3-18	3.3.1.1	Table 3-5: Route 11 cost is \$1,040.7 million, not \$312.17 million.	Revise Table 3-5

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action	
64	Vol. 1	3-18	3.3.1.1	Table 3-5: What are the numbers in the brackets under RT Trains per day?	Add a footnote to Table 3-5.
65	Vol. 1	3-24	3.3.1.1	Criterion 6 – Funding: Line 3 should be changed to “Routes with commuter . . . to be eligible for rate treatment . . .”	Replaced “...more likely to use...” with “...to be eligible for...”
66	Vol. 1	3-28	3.3.2.2	The table should not include the Consolidated Corridor since no air quality or environmental analysis was conducted for the corridor.	Delete the Consolidated Corridor from the table.
67	Vol. 1	3-29	3.4	The table should not include the Consolidated Corridor since no air quality or environmental analysis was conducted for the corridor.	Delete the Consolidated Corridor from the table.
68	Vol. 1	3-29	3.4	Add a table to show the incremental costs as the lines are electrified in the order shown. This would show some of the benefits explained in the text of Paragraph 3.4. The Grand Total would match the value in Table ES-3 on page ES-14 of the Executive Summary.	Add a table.
69	Vol. 1	3-31	3.4	Most of the scheduled durations are too long (e.g., a minimum of two years for preliminary and final design and four years for construction.)	Shorten schedule to a more realistic number.
70	Vol. 1	4-1	4.1	“Establish realistic cost estimates and schedules” should be added as a necessary step.	Add an additional step.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
71 Vol. 1	4-1	4.1.1	<p>The following key issue should be added to this section: "The Air Quality evaluation found that implementing commuter rail with diesel locomotives will increase basin NOx emissions by 1.2 tons/day by the year 2000 and by 2.04 ton/day by the year 2010. As a result of this NOx increase, SCRRA should be required to work with the SCAQMD and SCAG to develop an acceptable plan for mitigating these likely emissions increases. The SCAQMD should direct its staff to explore the feasibility and air quality benefits of requiring commuter rail agencies to reduce NOx emission elsewhere in the basin by an equal amount, requiring SCRRA to pay a \$ per ton emission fee until commuter lines are electrified or the benefits of increasing commuter rail are in the RECLAIM program. If fees are collected, the SCAQMD and SCAG should use the fees to accelerate rail electrification. Edison believes that SCRRA and MetroLink should commit to working with the SCAQMD and SCAG to develop an emissions mitigation plan prior to any changes being made to the SCAQMD October 1991 resolution.</p>	Add an additional key issue.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
72	Vol. 1 4-2	4.1.1	The bulleted item recommending that the AQMP should revise the resolution should be deleted. The study states that a number of other issues, such as costs and the feasibility of a demonstration line, should be resolved before the SCAQMD Board reviews their resolution. Any changes to the resolution should reaffirm the need for reducing rail emissions by 17% by 2000 and by 90% by 2010 as called for in the 1991 AQMP Measure 14.	Delete the bulleted item from the text.
73	Vol. 1 4-3	4.1.2	Edison believes the Consolidated Corridor has a number of problems. Air quality and environmental analyses were not conducted. It may take a relatively long time for all the involved railroads to negotiate and agree. Engineering on this route while awaiting railroad agreement could be a waste of money.	Change or amend the priority ranking to consider these potential problems.
74	Vol. 1 4-4	4.1.2	Paragraph 2 – Utility financing is not the only source of funding. It may impact the viability of the program but other funding sources will determine the viability.	Change paragraph 2 to “The availability of utility funding recoverable through rates <u>may</u> <u>impact</u> the viability . . .”

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

	Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
75	Vol. 1	4-5	4.1.3	Paragraph 2 – Preliminary engineering should take about 4 months with all the available background data. The cost of design engineering should be around \$250,000 and the environmental cost around \$1 million. Four percent of the capital cost is too high.	Revise schedule and cost estimates.
76	Vol. 1	4-5	4.1.3	Paragraph 3, bulleted items 1 and 4 – Both the Consolidated Corridor and the SP and ATSF lines should not be considered until agreements are made by the railroads.	Delete bulleted items 1 and 4 from the text.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

	Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
77	Vol. 1	4-9	4.2.1	The first step should be to define the scope and cost of the next phase for the SCRRA Board and obtain their concurrence and funding.	Add a new item regarding SCRRA approval and funding.
78	Vol. 1	4-10	4.2.1	First bullet: second line should be "... which elements of the electrification project <u>could</u> be eligible..." The CPUC will decide what elements are eligible.	Change throughout the report.
79	Vol. 1	4-10	4.2.2	First bulleted item, second phrase should be changed to "Demonstrate the eligibility of rail electrification for <u>utility</u> rate treatment."	Add the word "utility".
80	Vol. 1	4-10	4.2.2	Second bulleted item, change to "Initiate negotiations with SCRRA ... project <u>could</u> be eligible for rate treatment ..." The CPUC will decide eligibility.	Change throughout report.
81	Vol. 1	4-10	4.2.2	Last bulleted item, change to "Prepare and submit <u>utility applications for participation and determination of eligibility</u> for rate treatment ..."	Add language.
82	Vol. 1	4-11	4.2.3	Second bulleted item change to "... which elements of the electrification project <u>could</u> be eligible ..."	Change throughout report.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

	Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
83	Vol. 2	5-18	5.1.5	The aesthetic impacts would be more appropriately addressed in Section 11.3.3 – Environmental Impacts.	Move aesthetic impact discussion to Chapter 11.
84	Vol. 2	5-21	5.1.6.3	CPUC approval will also be required on vertical catenary clearances.	Mention that the system will conform with CPUC General Order 95 catenary clearance requirements.
85	Vol. 2	6-37	Table 6-16	Substation Maintenance Cost are high.	See Attachment A for realistic cost values.

ATTACHMENT A
COASTAL TRANSMISSION/SUBSTATION REGION

February 14, 1992

Substation Maintenance

	<u>Routine Mtc. Check</u>	<u>Gas Testing</u>	<u>Washing</u>
3 – 66 kV Gas CB's	12 Man Hours	4 Man Hours	4 Manhours

	<u>Routine Mtc. Check</u>	<u>Hipot</u>
6–12 kV Vacuum CB's Cubicle type	24 Man Hours	24 Man Hours

	<u>Clean and Adjust</u>
1 – 66 kV Disc	4 Man Hours per 3-Phase Disc

	<u>TCG, DGA, Dielectric Test</u>
Transformer	4 Man Hours per 3-Phase XFMR

This is a rough estimate for yearly maintenance for the type of equipment that we encounter.
 Total man hours/year to maintain a substation for rail electrification:

76 Man Hours/Year/Substation

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
86	Vol. 2 7-22	7.6	Why are O&M costs so much higher (50%) for electric locomotives? Are the maintenance costs really much lower in Northern Europe? Which figures are being used in this report?	Add a discussion of the reasons for the higher O&M cost in the U.S.
87	Vol. 2 9-1	9.0	This section should discuss the federal and state Clean Air Acts requirements for achieving attainment. This section should mention that the SCAQMD is designated an "extreme" ozone nonattainment area under the federal CAA. The section should state the federal annual ozone progress requirements for the basin (i.e., 15% during the first six years and 3% per year thereafter) and the likely sanctions, such as a "construction ban," which could be imposed on the region if the SCAQMD fails to meet the CAA progress mandates. This section should also include a discussion of the California Clean Air Act requirements for nonattainment areas such as the South Coast Air Basin.	Revise the section to include the requested discussion.
88	Vol. 2 9-25 thru 9-29	9.2.2	Impact and mitigation discussion should be presented in Chapter 11 - Environmental Issues.	Move the impact and mitigation discussions to Chapter 11.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action	
89	Vol. 2	10-4	Table 10-1	There are two Table 10-1 in the report. One is entitled Table A.	Eliminate Table A.
90	Vol. 2	10-4	Table 10-1	The mileages across each utility jurisdiction have been recalculated.	Replace Table 10-1 with Table B, (attached).
91	Vol. 2	10-4	10.3.1.1	Second paragraph, line 5 should read "The utility is allowed to recover through electric rates <u>charged to its customers</u> , the reasonable costs . . .	Revise section.
92	Vol. 2	10-26	10.3.1.2.1	The Title "Rate Bases" should not have a hyphen.	Eliminate hyphen.
93	Vol. 2	10-26	10.3.1.2.1	Line 5 should read - "This method generally applies to electric . . ."	Delete the word "an".
94	Vol. 2	10-28	10.4.1	Appendix 10-1 is omitted from the report.	Include Appendix 10-1.
95	Vol. 2	10-29	10.4.2.1	First paragraph, first line should read "If the CPUC is . . . state agency for CEQA <u>review</u> . . ."	Deleted the word "application".
96	Vol. 2	10-29	10.4.2.1	Appendix 10-2 and 10-3 are omitted from the report.	Include Appendices 10-2 and 10-3.
97	Vol. 2	10-29	10.4.2.1	First paragraph, line 6 should read ". . . Appendices 10-2 and 10-3."	Delete the words "provided in" and the phrase after Appendix 10-3 that begins ". . . are the state guidelines . . ."
98	Vol. 2	10-30	10.5.1.1	First paragraph, line 2 should read ". . . and seek recovery of the associated cost through rates, <u>approval by the CPUC will be sought</u> . . .	Delete the phrase "the utility must seek" and the word "approval".

TABLE B
CANDIDATE ROUTES FOR ELECTRIFICATION

ROUTE #	ROUTE NAME	MILES OF LINE*
1 (Freight)	Union Pacific/ Southern Pacific Corridor	394.0
	Edison Territory	223.0
	Imperial Irrigation District (IID)	147.6
	Arizona Public Service	6.0
	City of Los Angeles	6.0
	City of Colton	4.5
	City of Banning	4.4
	City of Vernon	2.5
	2 (Commuter)	Baldwin Park Branch (San Bernardino to L.A.)
Edison Territory		54.0
City of Los Angeles		1.5
City of Colton		1.5
3 (Commuter)	Moorpark Line (Moorpark to L.A.)	48.0
	Edison Territory	23.5
	City of Los Angeles	16.0
	City of Burbank	4.5
	City of Glendale	4.0
4 (Commuter)	Saugus Line (Santa Clarita to L.A.)	35.0
	City of Los Angeles	15.4
	Edison Territory	11.1
	City of Burbank	4.5
	City of Glendale	4.0
5 (Commuter)	Lossan Line (National City to L.A.)	134.0
	San Diego Gas & Electric	75.0
	Edison Territory	48.5
	City of Anaheim	5.5
	City of Los Angeles	2.5
	City of Vernon	2.5

* From Station to Station

TABLE B (con't)

CANDIDATE ROUTES FOR ELECTRIFICATION (Continued)

ROUTE #	ROUTE NAME	MILES OF LINE*
6	Riverside to Los Angeles	
(Commuter)	(via Ontario)	59.0
	Edison Territory	44.0
	City of Riverside	9.0
	City of Los Angeles	3.5
	City of Vernon	2.5
7	Riverside to Los Angeles	
(Commuter)	(via Fullerton)	62.0
	Edison Territory	45.8
	City of Riverside	9.0
	City of Los Angeles	2.5
	City of Vernon	2.5
	City of Anaheim	2.2
8	Hemet Line	
(Commuter)	(Hemet to Riverside)	39.0
	Edison Territory	36.5
	City of Riverside	2.5
9	San Bernardino to Irvine	
(Commuter)		53.0
	Edison Territory	39.7
	City of Riverside	9.0
	City of Anaheim	2.3
	City of Colton	2.0
10	Redlands Line	
(Commuter)	(San Bernardino to	
	Redlands)	12.0
	Edison Territory	12.0

* From Station to Station

TABLE B (con't)

CANDIDATE ROUTES FOR ELECTRIFICATION (Continued)

ROUTE #	ROUTE NAME	MILES OF LINE*
11	Southern Pacific -	282.0
(Freight)	Ports to Yuma	
	Imperial Irrigation	
	District (IID)	145.0
	Edison Territory	114.6
	Arizona Public Service	7.0
	City of Colton	4.5
	City of Banning	4.4
	City of Los Angeles	4.0
	City of Vernon	2.5
12	Santa Fe -	176.0
(Freight)	Ports to Barstow	
	Edison Territory	155.2
	City of Riverside	10.0
	City of Los Angeles	4.0
	City of Vernon	2.5
	City of Anaheim	2.3
	City of Colton	2.0
13	Union Pacific -	
(Freight)	Ports to Yermo	187.0
	Edison Territory	164.8
	City of Riverside	9.0
	City of Los Angeles	6.2
	City of Colton	4.5
	City of Vernon	2.5

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action	
102	Vol. 2	11-2	11.1	<p>The first bulleted item on this page mentions that 1992 diesel technology was used to estimate locomotive emissions. This is not correct. Both commuter and freight locomotives emissions factors used in the air quality analyses were assumed to be 25 to 30 percent less than 1992 locomotive emissions factors. This bullet should be changed to reflect that "locomotive emissions levels or factors used in the air quality analyses assumed that diesel locomotive would be able to reduce their emissions by as much as 30 percent by 2000". Page 11-10, item number 4, Volume 2, correctly states this fact.</p> <p>This section should also mention that the air quality analysis was not based on a mature commuter system because no comparable cost data was available for the mature system.</p>	Modify section.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

	Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
103	Vol. 2	11-19	11.2.1	First paragraph, line 1 should read "In recent years . . . exposure to the <u>power-frequency</u> electric and magnetic . . ."	Modify section. Add phrase "power-frequency"
104	Vol. 2	11-19	11.2.1	Second paragraph, states "In sum, the report concludes that there is currently insufficient evidence to determine whether low-level electromagnetic field exposure presents a health risk."	Delete words "low-level".
105	Vol. 2	11-20	11.2.1	Top paragraph, first line - "electromagnetic" should be electric and magnetic. Change throughout the text.	Change "electromagnetic" to electric and magnetic". Change throughout the text.
106	Vol. 2	11-22	11.2.3	Delete the first sentence "EMF from power systems . . . in a unique way".	Delete the sentence.
107	Vol. 2	11-23	11.2.3	Delete top paragraph "This interaction . . . fundamental to many life processes."	Delete the paragraph.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action	
111	Vol. 2	12-1	General	The Funding Analysis and Funding Alternatives sections of the report should state that SCRRA can electrify the commuter rail lines without the financial participation of any outside parties, provided the transportation authorities are willing to defer or eliminate competing projects. It should also be stated that both commuter and freight trains should be electrified where justified by public benefit.	Revise the section.
112	Vol. 2	12-1	General	As an alternative, SCE rate basing may provide a potential source of funding, but at a cost to the residents of Southern California which is significantly higher because of the need to generate a return and the requirement to pay taxes. The SCE rate basing scenario has been presented as the most viable source of funding without the significant qualification that rail electrification must prove to be beneficial to and in the best interest of SCE's customers. As such, SCE rate basing should be listed only as a potential source of funding. Also, any utility participation must be equitably allocated among all utilities based on the benefits to each.	Revise the section.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action	
		General (continued)	Commuter rail electrification should not be dependent on a base of utility funding, but should be justified and given a high priority based on the significant public benefits provided. Once it has been determined that these benefits justify the expense, all sources of funding should be pursued, including emission permits, road use fees, utility rate basing or taxes, and new taxes, all justified by the public benefit.		
113	Vol. 2	12-1	General	Throughout section "utility financing" should be changed to "utility participation"	Revise the text.
114	Vol. 2	12-1	12.1	Second sentence states that successful financing "will necessarily" include utility financing. This is not an accurate statement.	Replace "will necessarily" with "may".
115	Vol. 2	12-1	12.2.1	First paragraph, first sentence, should include a qualifier that utility financing "may be a viable", not "the most viable" method of funding a substantial portion of the cost of electrification if significant public and utility customer benefits can be proven.	Revise the text.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

	Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
122	Vol. 2	12-5	12.2.2	First paragraph, second line should read "Assuming that the investor owned utilities" SDG&E is also an investor-owned utility.	Replace "SCE" with "the investor-owned utilities."
123	Vol. 2	12-14	12.2.4	Fare surcharges to commuter rail riders, taxi cab surcharges, and other sources of funding should be looked at in greater detail.	Add a Section 12.2.4.5 that discusses fare surcharges as a funding source.
124	Vol. 2	12-16	Exhibit 12-1	Parenthesis in heading in third column should read (PER \$100 MILLION INVESTMENT). Footnote 5 shows cost of capital requirement for railroads, not SCE.	Revise the exhibit.
125	Vol. 2	12-16	Exhibit 12-1	SDG&E should be included on the exhibit.	Revise the exhibit.
126	Vol. 2	12-17	12.3.1.1.1	Paragraph three, third line should read "If an <u>investor-owned</u> utility elects to own . . ."	Add "an investor-owned" and delete "for example the Southern California Edison (SCE)"
127	Vol. 2	12-19	12.3.1.1.2	First full paragraph, top of page 12-19, add new sentence to end of paragraph. "Annual costs for all scenarios will change as the cost of each component changes. For example, tax rates, authorized rates of return, inflation, and other cost changes incurred by the utility may be passed on through customer rates."	Revise the text.
128	Vol. 2	12-19	Exhibit 12-2	Add "Preliminary Draft" to exhibit.	Revise the exhibit.

REVIEW COMMENTS

REVIEWER — SOUTHERN CALIFORNIA EDISON

Ref. No.	Page No.	Doc. Section No.	Comments by Reviewer	Response/Action
129 Vol. 2	12-20	Exhibit 12-2	Add "Preliminary Draft" to table.	Revise the text.

2 – COALITION FOR CLEAN AIR

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
 DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
 COALITION FOR CLEAN AIR**

Comment/Ref. No.	Disposition	Comments
1	D	Exhibits modified
2	D	Language modified
3	C	No double counting of duplicated segments
4	E	
5	E	Economies of scale were and will be considered
6	E	
7	D	
8	E	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

COALITION FOR



122 Lincoln Blvd., Suite 201 • Venice, CA 90291
(310) 450-3190 • FAX (310) 399-0769



March 12, 1992

Norm Jester
Project Manager
Regional Rail Electrification Task Force
SCRRA
818 W. 7th Street
Los Angeles, CA 90017

Dear Norm:

I'm sending these comments by fax to make sure you receive them before the March 13th deadline. I am also sending a hard copy by mail.

Since many of our comments do not refer to specific places in the document but to the Report and Task Force process as a whole, they do not lend themselves to the page by page format of the comment form you sent us. Thus, I have not used the standard response form. However, where necessary, I refer you to specific pages and figures in the Task Force Report.

The Coalition looks forward to continued participation in the development of clean electric rail.

For Cleaner Air,

A handwritten signature in cursive script that reads "Joel Schwartz".

Joel Schwartz

cc: Bruce Nestande
Bob Shipley

COALITION FOR



122 Lincoln Blvd., Suite 201 • Venice, CA 90291
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Comments of the Coalition for Clean Air Concerning the Draft Report of the Southern California Accelerated Rail Electrification Program

Submitted by Joel Schwartz, Staff Scientist
March 12, 1992

The Coalition appreciates the opportunity to comment on the Draft Executive Summary of the Southern California Accelerated Rail Electrification Program. While we are still conducting a detailed analysis of the Task Force report we applaud the tremendous efforts of the Task Force Consultants. We entered this process with many questions and we think we're well on the way to answering those questions and moving forward on a clean, electrified rail system for Southern California.

While we appreciate the efforts of the Task Force, we have three major areas of concern. First, we believe that the study overestimates the cost of electrification. Second, the executive summary fails to accurately reflect the results that were painstakingly developed by the Task Force. Third, the Draft Report has been distributed prior to input and editing from the Steering Committee and is being used to lobby public officials.

1 Rail Emissions are a Major Source of NO_x Pollution

The selective and incomplete presentation of data in the pie chart of Figure ES-7 leads to the erroneous conclusion that rail emissions are such a small piece of the pie that they're not worth bothering about. In fact, of the AQMD's 37 major NO_x source categories, locomotive emissions rank 12th largest at over 30 tons per day¹. Furthermore, in the year 2010, rail NO_x emissions, if uncontrolled, will make up 10% of all NO_x emissions allowed in the entire District ².

We could use the same specious argument in the case of water conservation. Each of the 12 million people in Southern California accounts for about 0.00001% of total water usage. What difference will it make if any one of us uses less? Plenty, according to recent conservation statistics. DWP recently requested a rate increase to make up the financial shortfalls created when all those insignificant water users started conserving. Fortunately, the AQMD recognizes that every source of pollution contributes to the problem

¹ Appendix III-A of the 1991 AQMP

² 1991 AQMP

and must be reduced. Eliminating any one source of emissions alone won't bring us healthful air.

Recommendation: The misleading pie chart in figure ES-7 should be deleted and the figure should be redesigned to reflect the fact that rail emissions are a major source of NOx pollution in the Basin. In addition, it should be noted that, if left unchecked, rail NOx emissions will be a major factor in preventing attainment of the federal ozone standard.

2 Electrification is Extremely Cost Effective as a Pollution Reduction Measure

One of the most important results of the Task Force study is nowhere to be found in the executive summary. The environmental assessment committee determined a cost effectiveness for electrification of \$6,300 - \$10,900 per ton when both freight and commuter rail are included³. When compared with costs for other major NOx control measures ranging from \$22,250 to \$52,700 per ton, this is a fantastic bargain. Unfortunately, one does not come away with this impression after scanning figure ES-10. What leaps out of the figure in big red blocks are the three routes that are *not* cost effective. The discussion of cost effectiveness should be redesigned to highlight the extremely low system cost of this emission reduction measure when compared with others *already* adopted by the District. The fact that there are three routes which are not cost effective is secondary as they represent only a small fraction of the total emissions. The report should also point out that if we don't seize these relatively inexpensive reductions, they will have to be found elsewhere at considerably greater expense.

Recommendation: The final report of the Task Force should accurately reflect the painstaking work of the Environmental Assessment Committee. The extremely low overall cost per ton for electrification should be detailed and emphasized.

3 Overestimation of Costs

Leaving the details of the cost estimation aside, it is clear that the task force's route by route analysis guarantees overestimation of both costs and construction schedules. For instance, route 13, UP Ports to Yermo includes the 59 miles of the Riverside to LA line (route 6). Will these two routes be engineered and designed twice? Will there be two EIRs? Will we have to pay out all the overhead costs twice by contracting for two separate projects? Yet this is exactly how the cost and construction time estimates were developed by the Task Force. Clearly, there's plenty of room for lowering costs by seizing on economies of scale. The estimated costs are as high as they are because the report appears to frame the issue as a route by route construction project rather than an integrated electrified system.

³ An Air Quality Impact Analysis of Electrified and Diesel Rail Systems Proposed for the South Coast Basin; Report of the Environmental Assessment Committee of the Regional Rail Electrification Task Force, February 3, 1992.

Recommendation: Eliminate unnecessary overhead costs by taking a systems, rather than a route by route approach to cost estimation.

4 Side clearances are another specific area in which cost estimates are grossly inflated. At the request of the railroads, the Task Force assumed 15' side clearances in its cost estimation. The Federal Railroad Administration (FRA) affirms that such large clearances are almost twice that required by federal law⁴. Federal law sets the minimum clearance at 8'6" and the American Railroad Engineering Association (AREA) recommends 9'6". The extra cost of providing these excessive clearances is over \$100 million⁵.

Recommendation: Redo cost calculations to reflect the *actual* side clearances recommended by both the FRA and AREA and used throughout the United States.

Construction of an Initial Corridor

5 While we favor immediate implementation of an electrification and/or alternative fuel program, once again, the task force report through its route by route ranking of candidates has framed the issue so that far more effective options are never considered. The route by route ranking ignores the fact that we're not electrifying individual routes, but a whole rail system. The task force's approach ignores the economies of scale in engineering, design and construction as well as the operational needs of the railroads. The Riverside to LA engineering study can be expected to show that it's not cost effective to electrify one commuter route alone, and meeting the operational needs of the UP will require electrification out to Yermo; a prospect for which funding is currently uncertain.

Recommendation: A recipe for successful electrification would consider electrification as an integrated system of rail operations. Instead of dividing the system by routes, divide it into complete operational segments that serve the needs of both commuter and freight operations. For instance, such an integrated segment might be the UP line from the port to Yermo which includes the Riverside to LA commuter line. This will lower costs and serve the needs of both commuter and freight operations.

6 UP/SP Consolidated Corridor Does Not Aid Electrification

The cost estimate for this route given on page ES-16 is only the cost of electrification. In other words, it assumes the Corridor is already there. Multiple extra tracks, right-of-way expansion, bridge modification and other

⁴ Richard Cogswell, Staff Engineer, Federal Railroad Administration, personal communication.

⁵ Calculated from information provided by Bob Shipley, lead consultant, that the extra clearance requires 30 extra poles per track mile at a cost of \$2,700 per pole.

⁶ Comment by Bob Shipley, lead consultant, at a Planning & Engineering meeting.

construction requirements could bring the cost of building the corridor itself to another \$2 billion over and above this⁶. The Corridor could also take an extra 10 or 15 years to design and build. In short, the Corridor amounts to a delay of more than a decade and excess costs of \$2 billion in order to save a few hundred million on electrification. Proponents of the Consolidated Corridor must demonstrate the validity of such a huge investment.

Recommendation: The proposal to build a Consolidated Corridor should be reevaluated in light of the huge costs and excessive construction times that it will entail. Proponents of the Corridor must justify the need for such a project.

Distribution of the Executive Summary

7 Although we congratulate the Rail Authority for widespread distribution of the Draft Summary, we question the justification for distribution prior to input and editing by the Task Force Steering Committee. In light of the serious concerns we have raised about biased presentation of some of the Task Force's key findings, we question the propriety of lobbying public officials with this flawed draft. When the corrected final report is completed, they must be presented with it, along with an explanation of how its conclusions differ from the Draft Summary.

Conclusion

8 The Task Force's Draft Executive Summary is a good start at assembling and processing mountains of data. We know a great deal more than we did just a few months ago. However, the report clearly distorts the major contribution of railroad NOx pollution as well as the comparatively low cost of eliminating it. In addition, the route by route framework in which the study was conducted and the large clearances granted the railroads intrinsically overestimate costs and construction times. The Coalition addressed some of these concerns in meetings with the Task Force consulting team. Although those discussions were fruitful, we still find that our cost concerns have not been addressed in the final report. The next step is to create a final report that remedies these deficiencies and presents a balanced portrayal of the costs and benefits of electrification.

3 - CALTRANS

DEPARTMENT OF TRANSPORTATION

DISTRICT 7, 120 SO. SPRING ST.

LOS ANGELES, CA 90012

(213) 897-3656

(213) 897-4650



March 12, 1992

Mr. Norm Jester
Project Manager
Regional Rail Electrification
Task Force
818 West 7th Street, Suite 1100
Los Angeles, California 90917

Dear Mr. Jester:

Rail Electrification Task Force Report

In response to your request for comments on draft copy of Electrification Task Force Report for the electrification of proposed commuter rail lines in the southern California basin.

1 It is our understanding that the Rail Electrification Program report was prepared in response to concerns regarding plans for implementation of diesel-powered commuter rail service and the need to comply with Measure 14 of the 1991 Air Quality Management Plan to reduce rail related emissions by 90% by the year 2010. It is Caltrans concern that your report does not mention fuel cell or gas turbine engine locomotive technology.

Caltrans is currently working with the United States Department of Energy (DOE) in creating a research program for the development of new power plant technology that would offer a substantial reduction in emissions.

In light of the high costs of electrification, between \$1.45 billion and \$4.6 billion at a minimum, we feel that your report should evaluate all possible alternative technology that may prove to be cost effective.

2 If and when Southern California Regional Rail Authority determine that commuter rail lines are to be electrified please be advised that Caltrans must be involved in the very early stages of design in order that the long lead time necessary to process permits and to ensure early application for State and Federal funding will be available.

The issuance of permits can take from 60 days to several years, depending on the complexity of the work. Existing law, and our mutual policies, dictate that a cooperative agreement


be in effect before a permit can be issued. In addition, whenever the cost of the work will exceed \$250,000.00, a Project Study Report is required. This can also take from months to years to complete. Finally Plans, Specifications and Quantities (PS&Q) must be reviewed for conformity to State standards. This is a labor intensive activity and the requirements are quite rigid.

The process for State and Federal funding is likewise time-critical, and must be begun as early in the project as possible.

To avoid delays in the program, I strongly urge you to consider the lead times, and requirements Caltrans will need to process the required Cooperative Agreements, permits, and Funding Applications.

If you have any question regarding Caltrans involvement in emission reduction research or the issuance of permits, please contact Mark Archuleta of my staff at (213) 897-6010.

Sincerely,


KEN NELSON, Chief
Public Transportation,
Ridesharing and Rail Branch

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
NATURAL RESOURCES DEFENSE COUNCIL**

Comment/Ref. No.	Disposition	Comments
1	A	
2	D	
3	C	
4	A	Comments reflected
5	E	Disagree with Paragraph 2 of comment
6	E	
7	D	Language modified
8	C	
9	E	Dependent on outcome of P.E./Alt. Fuels
10	A	
11	A	
12	D	Executive Summary incorporates comment as listed in new appendix
13	D	Focus should be on emission reduction, not on specific technology
14	C	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.



Natural Resources
Defense Council

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PRELIMINARY COMMENTS OF
THE NATURAL RESOURCES DEFENSE COUNCIL
CONCERNING
THE DRAFT RAIL ELECTRIFICATION TASK FORCE REPORT
by Veronica Kun

The Natural Resources Defense Council (NRDC) appreciates this opportunity to comment on the Draft Rail Electrification Task Force Report before The California Transportation Commission (CTC). We have had only a very brief opportunity to read and review the Executive Summary of the Draft Report, so we are only able to make very preliminary and general comments about its findings and methodology at this time. However, a more detailed and comprehensive analysis will be presented to the Commission as soon as it is available.

As the Commissioners are aware, the Task Force has extensively and exhaustively analyzed the costs, air quality benefits, financing options and technical constraints of rail electrification. The job of the Commission and the other responsible agencies is to interpret this vast body of data and to make sound policy judgements based on the information available.

However, this job is made more difficult because the Executive Summary provides only a selective analysis of the study results and gives an inaccurate interpretation of the most significant and critical findings of the Task Force committees. These findings are only available to the reader who combs through the various technical appendices and are not easily accessible to policy makers.

Therefore, we feel that it is important for us to highlight the key conclusions of the study and to point out their implications for the attainment of air quality goals and the development of a viable and sustainable regional rail system. It is also critical that the final Task Force Report be revised to provide a full analysis and objective interpretation to this Commission before it makes any further commitments to fund or approve proposed

rail projects.

Despite the Executive Summary's problematic presentation and lack of objectivity, the study data brings a number of key issues into focus.

I. RAIL ELECTRIFICATION CAN BE ACCOMMODATED WITHIN THE TIME-TABLE SPECIFIED IN THE AIR PLAN

1 The study clearly concludes that with a sustained financial commitment, electrification of all commuter and freight lines in the South Coast Air Basin can be completed in 18 years, well within the deadline specified in the regional Air Plan (AQMP). In other words, there are no technical barriers to electrifying all corridors in the air basin according to the original timetable prescribed in the Air Plan.

II. RAIL ELECTRIFICATION IS ONE OF THE MOST COST-EFFECTIVE REMAINING NOX REDUCTION STRATEGIES.

2 While the total cost of electrifying all of the 806 miles of track analyzed in the study is large, the cost of delivering pollution emissions reductions from rail operations is cheaper pound-per-pound than from any other source in the region. While this conclusion is obscured in the Executive Summary, it is clearly emphasized in the report of the Environmental Assessment Committee. We strongly urge the Commission to study the Environmental Committee Report for a more accurate portrayal of air quality issues.

The Environmental Assessment Committee concluded that if all trains operating on the electrified routes were electric powered, NOx emissions reductions could be delivered on average at between \$6,700 and \$10,900 per ton. Only three of the thirteen lines evaluated failed the cost-effectiveness test of \$30,000 per ton.

These costs compare extremely favorably to the average costs of NOx reductions from other sources in the air basin. For example, power plant emission reductions cost as much as \$46,000 per ton, refinery reductions cost up to \$22,250 per ton, and the costs for NOx control in large boilers can climb to \$52,700 per ton.

There is little question, that rail electrification represents one of the lowest cost alternatives for achieving the pollution reductions mandated in the Air Plan. In fact, by all measures, rail electrification is not only cost-effective, but a phenomenal bargain. Foregoing the opportunity to achieve NOx control from rail operations will only mean reliance on more costly and technically uncertain methods will need to be used to secure these reductions from other sources.

III. RAIL OPERATIONS WILL BECOME THE DOMINANT SOURCE OF NOX EMISSIONS IN THE AIR BASIN WITHIN THE NEXT TWENTY YEARS.

3 Data from the South Coast Air Quality Management District (AQMD) confirms that rail-operations will grow to become the overwhelming pollution source within the next twenty years. While today, locomotive emissions only represent 2.6 percent of total NOx emissions, without electrification they will contribute fully 87 percent of the total by 2010. A failure to control these emissions will result in the creation of an enormous deficiency in the AQMP, and will cripple the progress toward federal and state mandated attainment deadlines.

IV. THE ELECTRIFICATION OF THE REGIONAL RAIL SYSTEM IS THE FUNDAMENTAL ISSUE DEMANDING RESOLUTION, RATHER THAN THE MUCH NARROWER QUESTION CONCERNING COMMUTER RAIL OPERATIONS.

4 The question of whether to electrify the proposed commuter system steers the public policy debate in the wrong direction. The more appropriate and pressing public policy issue is whether it is cost-effective and sensible to carry through with the commitment to electrify the region's rail facilities according to the schedule sketched out in the AQMP and refined in the Rail Electrification Task Force Report.

The Task Force report shows that all of the thirteen candidate routes are either joint freight - commuter trackage or solely freight facilities. Thus, once electrified, all operators will be able to run trains using the electrified track and the projected cost-effective NOx emissions reductions will be realized. NRDC is convinced that the data assembled by the Task Force presents a compelling argument to reaffirm the commitment to electrification and serves as a full endorsement to move forward as rapidly as possible.

However, the necessary emissions reductions will not be realized, nor will the requirements of either state or federal air quality laws be fulfilled, unless all of the rail operators in the basin cooperate in the effort to reduce emissions. The challenge for state and regional planning bodies is to identify and activate whatever authorities they individually and collectively possess to successfully elicit the participation of all rail operators in implementing regional plans for rail electrification.

V. CLEAN FUEL TECHNOLOGIES ARE A VIABLE AND COST-EFFECTIVE ALTERNATIVE UNTIL FULL ELECTRIFICATION IS COMPLETED, AND WOULD RESULT IN SUBSTANTIAL AIR QUALITY BENEFITS.

5 The viability of clean-burning alternative fuels was evaluated by the Task Force consultants. These consultants concluded that a

number of natural gas based technologies present both viable and cost-effective interim alternatives to diesel locomotives. CNG and LNG locomotives are under development and will be commercially available within the next 12-24 months. The interim use of these technologies would result in emissions reductions of up to 75 percent over continued reliance on diesel railroad engines. The costs of these NOx reductions is estimated to be \$6,500 per ton for commuter trains; well within acceptable control cost parameters.

Based on these conclusions, there is no reason to allow even short-term excess emissions from new diesel locomotives. In addition to continuing with an aggressive electrification program, The Southern California Regional Rail Authority (SCRRA) should terminate the purchase of additional diesel locomotives and begin negotiations for the purchase of clean fuel engines.

In addition, freight rail operators should be required to phase-out reliance on diesel fuels. The report notes that the California Air Resources Board possesses the necessary authority to require the use of clean fuel vehicle technologies for existing locomotives. The California Clean Air Act also authorizes the AQMD to require the use of clean-burning transportation fuels in the basin, [Health and Safety Code sec. 40404, 40447.6(a), 40462(a)]. These existing authorities should be activated to ensure that all rail operators in the South Coast Basin join in the effort to reduce pollutant emissions to the lowest level possible.

VI. THE RECOMMENDATION TO CONSTRUCT AN INITIAL ELECTRIFIED CORRIDOR IS A TIMELY AND APPROPRIATE COMMITMENT BASED ON THE DATA ASSEMBLED BY THE TASK FORCE.

6 NRDC fully supports the recommendation to proceed with planning, design, and engineering of an initial electrified corridor. However, it should be clearly emphasized that this is not a demonstration project, but rather the first phase of a complete electrification program. The Task Force study provides ample data on costs, technical requirements, and construction scheduling to proceed with planning and design for multiple lines. Waiting on the completion of an unnecessary "demonstration" will only attenuate uncertainty, delay strategic commitments, and jeopardize the attainment of clean air mandates.

VII. NRDC RECOMMENDATIONS

The CTC's role in this effort is pivotal. This agency has the authority and the responsibility to withhold state funds for rail construction until all conditions relating to air quality are

fulfilled. We urge the Commission to do so until the following five commitments are made;

- 7 1) SCRRA, SCAG and AQMD reaffirm their commitment to the electrification schedule called for in Measure 14 of the AQMP.
- 8 2) SCRRA adopts a specific route-by-route electrification timetable (such as the one presented in the Task Force Report), and makes the necessary initial financial commitments to underwrite the electrification program.
- 9 3) SCRRA commits to construct an initial electrified rail corridor as recommended in the Electrification Task Force Report.
- 10 4) SCRRA commits to develop a program which minimizes the interim use of diesel locomotives on the Metrolink system prior to electrification. This commitment should specify that at the earliest possible date, SCRRA will discontinue the purchase of diesel locomotives in favor of models designed for clean alternative fuel technologies.
- 11 5) SCRRA, SCAG and AQMD commit to support or undertake the legislative or regulatory initiatives required to achieve AQMP emissions reduction targets from railroad activities, through the participation of all rail operators in the basin.
- 12 6) The Commission should instruct the Task Force consultants to finalize the Task Force report so that it responds to the concerns of all parties and wherever possible, reconciles differences in data and interpretation.

13 NRDC strongly urges the Commission to seize this key opportunity to build a clean, sustainable rail system in Southern California. The CTC itself, should make a commitment to a leadership role in the coordination and negotiation of agreements and contracts necessary to expeditiously implement plans for rail electrification.

14 In addition, we urge the Commission not to release any funds for rail projects until SCRRA, SCAG and AQMD adopt resolutions committing to an accelerated schedule of rail electrification and the activation of any authorities they possess to implement the rail electrification mandates in the AQMP.

5 – SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS**

Comment/Ref. No.	Disposition	Comments
1	A	
2	C	
3	E	
4	B	
5	B	
6	E	
7	B	
8	E	
9	E	
10	E	
11	E	
12	E	
13	E	
14	E	
15	E	
16	E	
17	E	
18	B	
19	E	
20	E	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS (Continued)**

Comment/Ref. No.	Disposition	Comments
21	A	
22	E	
23	E	
24	B	
25	E	
26	D	
27	E	
28	E	
29	B	
30	B	
31	B	
32	E	
33	B	
34	B	
35	E	Issue addressed to extent possible prior to P.E.
36	B	
37	E	
38	B	
39	E	
40	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
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**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS (Continued)**

Comment/Ref. No.	Disposition	Comments
41	B	
42	B	
43	E	
44	B	
45	B	
46	B	
47	B	
48	B	Same as 26 and 27
49	E	Same as 16
50	E	Same as 22 and 20
51	B	Same as 21
52	E	Same as 23 and 24
53	E	Same as 25
54	B	
55	E	
56	B	
57	E	Same as 28
58	B	Same as 29
59	B	
60	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
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**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS (Continued)**

Comment/Ref. No.	Disposition	Comments
61	B	
62	B	
63	B	
64	B	
65	B	
66	B	Same as 7
67	B	
68	B	
69	B	
70	B	
71	B	
72	B	Same as 31
73	E	Same as 32
74	B	Same as 33
75	B	Same as 29, 36, 38 and 39
76	B	Same as 40
77	B	Same as 41
78	B	
79	B	Same as 42
80	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
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- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
 DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
 SOUTHERN CALIFORNIA
 ASSOCIATION OF GOVERNMENTS (Continued)**

Comment/Ref. No.	Disposition	Comments
81	E	Same as 43 and 44
82	B	Same as 45 and 46
83	B	Same as 45 and 46

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

818 West Seventh Street, 12th Floor • Los Angeles, California 90017-3435

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Mr. Norm Jester, Project Manager
Regional Rail Electrification Task Force
Southern California Regional Rail Authority
818 West Seventh Street, Ste. 700
Los Angeles, CA 90020

March 12, 1992

Dear Mr. Jester:

We are writing in response to your request that we review the Draft report, Southern California Accelerated Rail Electrification Program BY March 13, 1993.

First of all, we want to acknowledge the great amount of work done by the SCRRA and their consultants in compiling the report in only a few months.

SCAG's Executive Committee has directed staff to create a TCM subcommittee to refine Measure 14 Railroad Electrification and Measure 11 Rail Consolidation to Reduce Grade Crossings. The SCRRA, SCAQMD, ARB, CTC, and Caltrans are invited to attend the first meeting to establish subcommittee membership. This TCM subcommittee will determine the size and scope of the Measure 14 electrification effort and funding needs, and will develop a financial plan, emissions reduction targets, and enforceability, by June 1993. It is anticipated that the Accelerated Rail Electrification Program Report will greatly facilitate work towards these ends.

While it is difficult to provide a thorough review of the report in the time permitted, staff have provided comments on a number of areas of the report, in the attached document.

is not presented), or are unlikely to change. This represents an unknown about which no conclusion can be drawn from the contents of the current report. This will be addressed in the refinement of Measure 14.

Page 9-6

7

9.1.2.4 "SCAG states that delaying implementation of commuter rail for electrification--". Meaning is ambiguous and unclear. This statement could be interpreted by some to mean that delaying of electrification of commuter rail could subject the region to federal sanctions. This should be changed to say "SCAG states that delaying the implementation of commuter rail for any reason, such as the additional time it would require to plan, engineer, fund, and secure commitments to electrify the first commuter rail lines to open, could subject the region to Federal sanctions--".

Omissions and Deficiencies in the Emissions Calculations

1.

8 Emission calculations based upon 70% Electric Vehicles may be unrealistic in future years. SCAG will work with SCAQMD and CARB to evaluate and refine assumptions about 2010 auto fleet composition.
2.

9 Calculations of alternative driving behavior and VMT are best estimates, based upon limited data from the AB 1402 report. Transportation modeling of the commuter rail mode, which could not be undertaken in the limited time for this study, is necessary to refine these estimates and the probable emissions savings by diversion to the trains. This still requires significant refinement which SCAG is undertaking in the refinement of the Regional Mobility Plan and AQMP.
3.

10 Projected locomotive emission reductions for existing diesels are, as yet, unverified in actual operations. While some evidence exists for potential improvements in NOx emissions from operational, timing, and fuel improvements, no actual tests of such changes and their effectiveness have been presented in this report. Monitoring of proposed interim diesel locomotive emissions improvements for commuter rail operations is essential to validate these assumptions.
4.

11 Projected locomotive emission reductions for "alternative fuel" locomotives are speculative and are based upon limited data not sufficient to support a final finding. No alternative fuel locomotive using methanol is known to currently exist, so all benefits ascribed to this option are based upon limited experience with non railroad applications. One test program for natural gas fueled locomotives exists in the U.S., but no specific data on emissions from this program is presented in this report.
5.

12 Future emissions for commuter rail operations in the year 2010 are not available. No long range commuter rail operating plan exists for year 2000 or 2010 on which to base emissions estimates. A long range operating scenario for years 2000 and 2010 will be necessary to estimate future year baseline emissions.

SCAG will undertake to assess likely future operating scenarios, service levels, and ridership to revise future year emission estimates in the refinement of Measure 14.

Evaluation Methodology

- Page 3-2 3.2 Evaluation Criteria. The evaluation process involves criteria which apply to freight-only, passenger-only, and passenger + freight corridors. There is something intuitively peculiar with doubling weights for freight-only and passenger-only alternatives, for comparison with passenger + freight. This may be taken to imply that the pollution, etc. cost impacts of freight and passenger service are equal. It may be impossible to use this kind of matrix in this kind of comparison, and come up with anything meaningful.
- 13
- Perhaps a better approach would be to go through the evaluation process separately for freight and passenger lines, and then compare the mixed freight plus passenger corridors with both. It is suggested that a sequential process of evaluation, separating quantifiable and non-quantifiable criteria, should perhaps be employed. Cost per ton of emissions reduced should perhaps be the most important criterion.
- It is further suggested that combinations of routes which might be workable packages for pollution reduction, should be costed out and compared, first, to determine what might be alternatives that could be afforded. Then, of these combinations, a determination should be made of which of these are practical and feasible.
- Page 3-4 Criterion 8. Potential for packaging. Suggest that this should not be a criterion per se in first tier analysis. Instead, packages of lines should be assembled that can be compared using a much simpler linear scoring matrix, in a second or higher tier analysis.
- 14
- Page 3-4 3.3 Results of the Evaluation. A problem with this type of evaluation is that only 38% of the weight is based on quantifiable factors, while 62% is based on non-quantifiable factors. For 3) Transportation Cost-Effectiveness, there are too many factors included, and equal weight for passenger and freight measures is dubious.
- 15
- Pages
3-13, 3-15 Schedule/Timing and Legal provide the same rankings. why not combine the two as "difficulty of implementation" and eliminate one criterion?
- 16
- 17 Page 3-20 Capital cost per passenger on route 5 fails to include Amtrak passengers.
- 18 Page 3-21 Cost per passenger mile Table 3-6 on LOSSAN Route 5 are not accurate and fail to account for 10 Amtrak round trips per day by 1997.

Pages

3-6 and 3-26 Shared use (freight/passenger) rates Route #1 (Consolidated Freight Corridor) although level of passenger service on SP portion is zero. In contrast, the Riverside via Ontario line is rated lower in shared use potential, although the entirety of the UP line from LAUPT to downtown Riverside will be used for commuter rail.

19

Page 4-5 It is assumed that Route 1 will preclude Routes 13, 12, and 11. Hence, there can be no simple priority, but a decision tree such that certain routes if chosen will not only preclude others but perhaps change the priority of routes that are not precluded. This is hinted at in the text but should probably be spelled out more clearly, with a diagram showing the impact of decisions, rather than just a priority list.

20

Page 4-5 4.1.2 Preliminary Engineering, par.3. Although the demonstration project mentioned in this section might be a possibility, it is suggested that a competitive bidding process be used for any such project, to ensure competitiveness and cost-effective procurement. It should not be recommended that existing consultant contracts be amended to proceed directly into preliminary engineering/environmental work on a demonstration project.

21

Consolidation

Page 4-3 It is difficult to see how Route 1, Consolidated Corridor can be a recommended priority for route electrification if the railroads will have serious difficulty with it in terms of access to their rail yards and customers.

22

Page 4-5 First bullet. Considering the need for very thorough study of impacts on railroad operations, access to customers and existing facilities, traffic impacts and grade separation costs, etc., requiring a research effort on the level of magnitude as the Ports Access Study, or greater, the consolidated east-west corridor should probably not be chosen as a demonstration project.

23

24

If the east-west consolidated rail corridor were implemented and electrified, the UP Riverside commute service would operate over part of the line. Does this mean that a diesel commute service would operate over the western half of the consolidated corridor, or that the commuter line would also need to be electrified, so that it would not be a single demonstration corridor, but a corridor and a half?

Type of Electrification

Chapter 5 The 25 kV system be recommended in view of the bridge reconstruction costs associated with 50 kV, despite the advantages the latter system would have otherwise.

25

Diesel and Electric Locomotives

- Page 3-4 Criterion 7. Strongly agree that freight travel times are less likely to improve due to electrification, as the tendency will be to substitute fewer electrics for a given number of diesels for long/heavy line-haul trains which will cause most of the pollution. A 1:1 substitution will occur only for short trains, many of which are on branch lines that would not be electrified. There would be a decrease in freight travel times only for a small percentage of trains. This should be mentioned in the report.
- 26
- Further, the issue of competitive advantage/disadvantage in relation to the trucking industry needs to be mentioned here. The increase in travel time for freight service due to the need to change engines could have a negative impact on rail service at the expense of increased trucking, if rail service is slowed down. This would also have negative air quality impacts that could reduce benefits from electrification.
- 27
- Page 7-21 7.5.4.4 re Amtrak: why not just use two AEM-7s for the long intercity trains within the basin, as the locomotives will be changed at Yuma or above the Cajon Pass anyway? We are not planning for long-distance electrification at this point, so it may be simpler to just buy a few more locomotives of the same kind if they are needed for certain passenger trains.
- 28
- Page 7-22 Paragraph 3, concerning popular opinion about electric locomotives. Not only is this statement correct, but in addition, most of the studies on electrification have compared new, replacement electric locomotives with well-used diesels. Comparable comparisons between equipment of the same vintage are seldom made. While the Amtrak experience may be exceptional, this supports the fact that popular opinion has tended to over-rate the advantages of electric locomotives.
- 29

Utility, Agency, and Regulatory Roles

- Page 9-16 9.1.12 Second paragraph (this is a typo): last line should be "direction from the EPA,--".
- 30
- Page 9-18 9.1.15, par. 4. Insert in "but also many changes to track" add ",signaling and communications systems," then continue "and civil structures--".
- 31
- Page 9-20 9.1.16 par. 3. A third potential role in electrification, is that in the event trading of emissions credits is allowed, the utilities could electrify railroads in lieu of modifying certain power plants to reduce certain pollutants. (This role, of course, could be played also by other industries which pollute.)
- 32
- Page 9-23 9.1.22 Local State Jurisdictions. The title is ambiguous. It could be changed to "Local Jurisdictions in Southern California"
- 33

- 34 Par. 2, should say "In some of the potentially affected counties within area served by the SCRRA---".
- Page 9-24 9.2.1 Par. 2. The rights of the SCRRA and member counties to electrify railroad rights-of-way acquired from railroads would depend upon whether they have purchased the right-of-way in entirety, or simply an easement along a corridor which is still owned by a railroad. In the latter case, legal determination is needed, in addition to engineering studies including impacts on railroad communications, signaling, grade crossing circuitry, etc. The California PUC probably also to be consulted on this issue.
- 35
- Page 9-24 Top. Correct reference to these railroad lines and abandoned rights-of-way is as follows:
- 36 Baldwin Park Branch
Azusa Branch
State Street Line
Burbank Branch
Santa Ana Branch
Santa Monica Branch
Alla Branch
- 37 Par. 5. The same comments as made above for P. 9-24, 9.2.1, Par. 2 apply here. It seems clear that when the entire R/W is purchased, rights to electrify are conferred. However, it is questionable whether "The easement rights owned by the SP and sold to the counties are also broad enough to justify such construction." There is a need to get PUC and legal opinion on this issue.
- 38 Again, with respect to the bullet items under this paragraph: it will be necessary to ensure against interference with railroad signaling and communications systems, and grade crossing circuitry. (In the latter case, perhaps redundant circuitry for freight tracks, and electrified passenger trackage, connected with the same gates, lights, and bells, will be necessary.)
- 39 It would seem that if these factors are satisfactorily addressed, that purchase of an easement on R/W also operated by a freight railroad will permit construction of electrification infrastructure. But you need to find out for certain.
- Page 9-25 Last Paragraph. If third party impacts (on pipelines, electric utilities, etc.) are a concern, there should be just as much concern over impacts on freight operations on railroad-owned track, along rights-of-way where there will be parallel freight (non-electrified) and passenger (electrified) operation. This point is hinted at on Tables 9-2 and 9-3, but should be made clear in the text as well.
- 40
- Page 9-30 Section 9.3.1 It is unclear why the type of motive power applied to the start-up or conversion of any commuter rail service would have bearing on CEQA
- 41

exemption. Since the right-of-way is already in use, would not institution of any commuter service, whatever the motive power, be sufficient for CEQA exemption?

Page 9-34

42

First paragraph, last sentence. Can CARB require specific control technologies such as electrification, if given authorization by the EPA to regulate locomotive emissions, when the EPA apparently does not have authority to specify a particular control technology? Or does this have to do with an emissions cap for a source like freight railroads, which could in effect require no emissions for most locomotives, leaving electrification as the only likely strategy to allow the railroads to reach this target--without specifying a control technology? Doesn't Health and Safety Code Section 40702 also apply to CARB?

Page 9-37

43

9.6.2 Rail operations on an electrified line would normally be cheaper than for a diesel-powered line. The capital costs would be high, initially, but this should not enter into computation of the farebox ratio. This legislation might be useful nevertheless in case some unusually high O & M costs might be incurred during the start-up of operation, or in case of some natural disaster entailing floods, high winds, etc. which might require excessive maintenance.

44

9.6.3 CEQA exemption. Also a good idea, to facilitate freight electrification and to eliminate ambiguities in the current laws which might impose an unnecessarily long delay on the start-up of electrification of passenger service.

Railroad Role in Finance

Pages 12-29
to 12-38

45

Railroads. It seems very unrealistic to expect the railroads to pay 10%-16.7 share for electrification of commuter rail only, considering that they would not receive any operational benefit under that scenario and may suffer from operational disruption during construction. This would have to be viewed as "tax" on emissions caused by freight locomotives.

The 10% railroad share should be limited to the commuter rail plus freight operation scenario only for that reason. Only under the condition that freight railroads will be able to use the electrification infrastructure should they be expected to pay a share for constructing the facilities.

46

The issue of a railroad pollution tax related to diesel emissions should be kept separate from the present discussion.

SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM

PRELIMINARY DRAFT for SCRRA Jan. 31, 1992 Comments by A. Havens 2/14/92

47 p. 2-2 2.1.3 Freight routes, Access to the port. Uncertain what is meant by substitute electric locomotives between the San Bernardino/West Colton area. Assume this means the distance between the ports and SB/Colton is too short and does not reflect RR crew change points which are farther to the north/east.

48 p. 3-3 Criterion 7. Strongly agree that freight travel times are less likely to improve due to electrification, as the tendency will be to substitute fewer electrics for a given number of diesels for long/heavy line-haul trains which will cause most of the pollution. A 1:1 substitution will occur only for short trains, many of which are on branch lines that would not be electrified. There would be a decrease in freight travel times only for a small percentage of trains. This should be mentioned in the report.

Further, the issue of competitive advantage/disadvantage in relation to the trucking industry needs to be mentioned here (it is discussed later on, on p. 4-5). The increase in travel time for freight service due to the need to change engines could have a negative impact on rail service at the expense of increased trucking, if rail service is slowed down. This would also have negative air quality impacts that could reduce benefits from electrification.

49 3-20 et al Schedule/Timing and Legal provide the same rankings. why not combine the two as "difficulty of implementation" and eliminate one criterion?

50 4-2 It is difficult to see how Route 1, Consolidated Corridor can be a recommended priority for route electrification if the railroads will have serious difficulty with it in terms of access to their rail yards and customers.

Also, it is assumed that Route 1 will preclude Routes 13, 12, and 11. Hence, there can be no simple priority, but a decision tree such that certain routes if chosen will not only preclude others but perhaps change the priority of routes that are not precluded. This is hinted at in the text but should probably be spelled out more clearly, with a diagram showing the impact of decisions, rather than just a priority list.

51 4-3 4.1.2 Preliminary Engineering, par.3. Although the demonstration project mentioned in this section might be a possibility, it is suggested that a competitive bidding process be used for any such project, to ensure competitiveness and cost-effective procurement.

52 4-4 first bullet at top. Considering the need for very thorough study of impacts on railroad operations, access to customers and existing facilities, traffic impacts and grade separation costs, etc., requiring a research effort on the level of magnitude as the Ports Access Study, or greater, the consolidated east-west corridor should not be chosen as a demonstration project for immediate implementation. This section of the report should specifically recommend against a demonstration project without adequate study, on this corridor.

If the east-west consolidated rail corridor were implemented and electrified, the UP Riverside commute service would operate over part of the line. Does this mean that a diesel commute service would operate over the western half of the consolidated corridor, or that the commuter line would also need to be electrified, so that it would not be a single demonstration corridor, but a corridor and a half?

53 5-3. Strongly agree that the 25 kV system be recommended in view of the bridge reconstruction costs associated with 50 kV, despite the advantages the latter system would have otherwise.

54 6-all The draft available thus far has far from complete information on operations. Extensive information will be needed on freight train traffic, movements, customers, etc. in the final report.

55 7-4 Why is the cost for electrification for the SP Yuma Line to the Ports shown as \$ 274 million for commuter rail and \$ 311 million for commuter plus freight, when no commuter rail is anticipated on this route other than a few miles linking the State Street Line and Baldwin Park Branches on the LA-San Bernardino line, assumed to be included in Route 2 (Baldwin Park)?

Similarly, for the SP/UP corridor, is the \$ 409 million for freight only and the \$ 457 million for freight + commuter (part of UP line to Riverside)?

Why even do commuter + freight for the Baldwin Park Branch when all the freight service is local in nature and will probably be handled by diesels?

56 7-6 Why is does Table 7-4, overall electrification, have the same numbers as 7-2, power supply system? How do tables 7-2,3, and 4 relate?

57 7-7 7.2.4.4 re Amtrak: why not just use two AEM-7s for the long intercity trains within the basin, as the locomotives will be changed at Yuma or above the Cajon Pass anyway? We are not planning for long-distance electrification at this point, so it may be simpler to just buy a few more locomotives of the same kind if they are needed for certain passenger trains.

58 7-8 Paragraph 3, concerning popular opinion about electric locomotives. Not

only is this statement correct, but in addition, most of the studies on electrification have compared new, replacement electric locomotives with well-used diesels. Comparable comparisons between equipment of the same vintage are seldom made. While the Amtrak experience may be exceptional, this supports the fact that popular opinion has tended to over-rate the advantages of electric locomotives.

59 8.0 **Alternative Fuels. Overall, many typos, run-on words, etc. in this section: writing style needs to be cleaned up considerably.**

Is this section recommending a pilot program? Unclear as to where this is going with respect to future action.

60 VIII-1 **1.1 Purpose. It is unlikely that we will use first diesel locomotives, then alternative fuels, and then electrification. Some lines may be converted from diesel to electrification, especially lines with a high frequency of service and any lines operating over heavy freight corridors which may be electrified. Other lines might be converted from diesel to alternative fuels, should the latter prove practical in service applications.**

Hence, the first paragraph should state that there may be opportunities to lower emissions using alternative fuels, for low-density commuter lines which would not cost-effectively justify electrification; also that there could emerge opportunities to apply such fuels to low-density freight lines, switching activity, etc. It is commuter trains, not "commuter rails" that will play a vital role in reducing future emissions.

Paragraph 2--should probably state that the most promising and cost effective way of reducing locomotive emissions, for services/operations that will not ultimately be electrified, is presented at the end of the chapter.

2.1.1 Vehicle driving range is not the proper term to apply to locomotives.

2.2.2 The term wanted here is "tunnel clearances". The job of a locomotive is to haul a train, not push power through a tunnel. Railroads do not ride on the standard 4'8" rail gauge, they run on tracks.

61 VIII-2 **last paragraph. "Up to one third of the fuel introduced by fumigation would pass directly out the exhaust pipe without a chance for combustion." Does this refer to what actually happens in locomotive diesel engines, or what would happen if truck engines were operated this way? Meaning is totally unclear, and it makes it look as though locomotives are wasting one third of the fuel they use!**

62 VIII-4 **third paragraph. What kind of engine is the Detroit Diesel DDC 149TI? Is it a natural gas-burning engine or does it burn diesel fuel? Meaning unclear.**

- 63 VIII-5 Table 1. Notch 6 and 7 data not indicated as such. Suggest that for these two rows, all the columns were moved over by one column so that the figures given under notch really apply to RPM, etc. across the page.
- 64 VIII-6 last paragraph. The engine is not intended to be placed in the locomotive cab, because that is where the train crew is located. The engine is under the hood, instead.
- 65 VIII-9 Is Figure 16 going to be added to the final draft?
- 66 9-6 9.1.2.4 "SCAG states that delaying implementation of commuter rail for electrification--". Meaning is unclear. This makes it sound as though delaying electrification of commuter rail could subject the region to federal sanctions. This statement should probably be changed to "SCAG states that delaying the implementation of commuter rail for any reason could subject the region to federal sanctions for failure to expeditiously implement TCM 2g. Hence, the additional years it would require to plan, engineer, fund, and secure commitments to electrify the first commuter lines, could cause federal sanctions to be applied. These sanctions may include disapproval--".
- 67 9-7 Sixth bullet item on page (second up from bottom of page). First sentence. Shouldn't this say "new locomotives or new engines used in locomotives"?
- 68 9-8 9.1.4, second paragraph in this section. "Despite the determination for technology selection — it appears the CTC may still not legally mandate technologies--". Meaning is ambiguous. Suggest the wording be changed to: "However, as it has been determined that technology selection is legally reserved as a function of the county transportation commissions under Public Utilities Code Section 130303(e), it appears that the CTC may not legally mandate technologies, with certain exceptions. For instance, Proposition 116 funds—".
- Third paragraph in this section. "Other Commissioners disagree--". Shouldn't this say "Other Commissioners disagree with the position and believe that current investments are consistent with the goal of eventual electrification."? Next sentence should be, "Formal CTC regulations on this subject are being considered; however,—".
- 69 9-9 Paragraph 3 (second from bottom). Concerning proposition 108. Although application of funds to specific projects was not detailed in the act, Caltrans has a list of corridors, including commuter rail corridors, which are eligible for Proposition 108 funding.
- 70 9-16 9.1.12 Second paragraph. last line should be "direction from the EPA,—".

- 71 9-17 Par. 2. Assume that a table showing ISTEA will be in final report.
- 72 9-18 9.1.15, par. 4. Insert in "but also many changes to track" add ",signaling and communications systems," then continue "and civil structures--".
- 73 9-20 9.1.16 par. 3. A third potential role in electrification, is that in the event trading of emissions credits is allowed, the utilities could electrify railroads in lieu of modifying certain power plants to reduce certain pollutants. (This role, of course, could be played also by other industries which pollute.)
- 74 9-23 9.1.22 Local State Jurisdictions. The title is ambiguous. It could be changed to "Local Jurisdictions in Southern California"

Par. 2, should say "In some of the potentially affected counties within area served by the SCRRA--".

9.2.1 Par. 2. The rights of the SCRRA and member counties to electrify railroad rights-of-way acquired from railroads would depend upon whether they have purchased the right-of-way in entirety, or simply an easement along a corridor which is still owned by a railroad. In the latter case, legal determination is needed, in addition to engineering studies including impacts on railroad communications, signaling, grade crossing circuitry, etc. The California PUC probably also to be consulted on this issue.

- 75 9-24 Top. Correct reference to these railroad lines and abandoned rights-of-way is as follows:

Baldwin Park Branch
Azusa Branch
State Street Line
Burbank Branch
Santa Ana Branch
Santa Monica Branch
Alla Branch

Par. 3. The same comments as made above for P. 9-23, 9.2.1, Par. 2 apply here. It seems clear that when the entire R/W is purchased, rights to electrify are conferred. However, it is questionable whether "The easement rights owned by the SP and sold to the counties are also broad enough to justify such construction." There is a need to get PUC and legal opinion on this issue.

Again, with respect to the bullet items under this paragraph: it will be necessary to ensure against interference with railroad signaling and communications systems, and grade crossing circuitry. (In the latter case, perhaps redundant circuitry for freight tracks, and electrified passenger

trackage, connected with the same gates, lights, and bells, will be necessary.)

It would seem that if these factors are satisfactorily addressed, that purchase of an easement on R/W also operated by a freight railroad will permit construction of electrification infrastructure. But you need to find out for certain.

- 76 9-25 Par. 3. If third party impacts (on pipelines, electric utilities, etc.) are a concern, there should be just as much concern over impacts on freight operations on railroad-owned track, along rights-of-way where there will be parallel freight (non-electrified) and passenger (electrified) operation. This point is hinted at on Table 9-3 on P. 9-26, but should be made clear in the text as well.
- 77 9-30 It is unclear why the type of motive power applied to the start-up or conversion of any commuter rail service would have bearing on CEQA exemption. Since the right-of-way is already in use, would not institution of any commuter service, whatever the motive power, be sufficient for CEQA exemption?
- 78 9-32 9.3.3, par. 2. Same comment as 9-30. Future electrification on a commuter line already in operation will most probably be associated with an increase in passenger service. Would this not suffice to continue the CEQA exemption?
- 79 9-34 First paragraph, last sentence. Can CARB require specific control technologies such as electrification, if given authorization by the EPA to regulate locomotive emissions, when the EPA apparently does not have authority to specify a particular control technology? Or does this have to do with an emissions cap for a source like freight railroads, which could in effect require no emissions for most locomotives, leaving electrification as the only likely strategy to allow the railroads to reach this target--without specifying a control technology? Doesn't Health and Safety Code Section 40702 also apply to CARB?
- 80 9-36 9.5.1.2.1 Suggest the following wording for the last sentence in this paragraph: "Operations control could be provided by SCRRA on all commuter lines on publicly-owned right-of-way and by freight railroads on the lines they own,—". [It is extremely unlikely that the freight railroads would relinquish control over their transcontinental freight operations on any lines over which commuter trains operate in the basin. They will almost certainly insist on control over their operations.]
- 81 9-37 9.6.2 Rail operations on an electrified line would normally be cheaper than for a diesel-powered line. The capital costs would be high, initially, but this should not enter into computation of the farebox ratio. This legislation might

be useful nevertheless in case some unusually high O & M costs might be incurred during the start-up of operation, or in case of some natural disaster entailing floods, high winds, etc. which might require excessive maintenance.

9.6.3 CEQA exemption. Also a good idea, to facilitate freight electrification and to eliminate ambiguities in the current laws which might impose an unnecessarily long delay on the start-up of electrification of passenger service.

82

12-27

Railroads. It seems very unrealistic to expect the railroads to pay a 10% share for electrification of commuter rail only, considering that they would not receive any operational benefit under that scenario and may suffer from operational disruption during construction. This would have to be viewed as "tax" on emissions caused by freight locomotives.

The 10% railroad share should be limited to the commuter rail plus freight operation scenario only for that reason. Only under the condition that freight railroads will be able to use the electrification infrastructure should they be expected to pay a share for constructing the facilities.

The issue of a railroad pollution tax related to diesel emissions should be kept separate from the present discussion.

83

12-28

Railroads. Same comment as 12-27.

**6 – U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION**

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
 DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
 U.S. DOT FEDERAL RAILROAD ADMINISTRATION**

Comment/Ref. No.	Disposition	Comments
1	E	Partially agree with comment
2	D	Facilities maintenance reference was to establishment of alignment and level during construction. Agree that pantograph contact is not an issue on FRA Class 3 or higher track. Maintenance equipment cost issue, raised by UPRR, requires study.
3	E	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.



U.S. Department
of Transportation
**Federal Railroad
Administration**

400 Seventh St., S.W.
Washington D.C. 20590

Mr. Norm Jester
Project Manager, Electrification Task Force
Southern California Regional Rail
Authority
818 W 7th Street - 7th Floor
Los Angeles, California 90017

Dear Mr. Jester:

Thank you for sending the various draft copies of your electrification report. Overall, your staff has done a commendable job in a very short period of time.

1 We would like to discuss Section 6.5 of Volume II, which covers operating and maintenance costs. This topic is difficult to address in North America, because there is virtually no comparable electric operation for reference. The 12 year old Amtrak AEM-7's are in high speed (125 mph) service averaging 370 miles a day, where repeated acceleration and deceleration utilize their 9,000 H.P. (short time rating) to its maximum. Cruising at 125 mph requires 6th notch on the throttle, because air resistance goes up with the square of the speed. The mechanical pounding to and from the tracks is also a speed squared function. This would indicate that the AEM-7 should cost significantly more (more than twice as much) to maintain and operate than a comparable locomotive in lower speed (80 mph maximum) commuter service.

Amtrak diesels, while similar to those in commuter service and operating at less than 80 mph, do average nearly 500 miles per day. This means that the relatively fixed costs of inspections and servicing represent a lower cost per mile than a commuter locomotive averaging perhaps 150 miles per day. The San Francisco commuter diesels average in the vicinity of 100 miles per day and are quite new; thus being relatively inexpensive to maintain, because nothing is old enough to require replacement or overhaul. Any maintenance cost analysis should use a long term average over the life of the locomotive, rather than a short term cost for a new locomotive that only needs servicing and inspection.

The brief discussion on the BC Rail experience with electric locomotives need elaboration. The BC Rail fleet consists of only 7 locomotives, which operate 24 hours a day in low mileage service at temperatures of -30° to -50° F. during the winter. It is basically a prototype fleet (there are no other GF6C locomotives) which in 1985 was having severe traction motor problems, which were not associated with the fact that they were electric locomotives. The maintenance facility at Tumbler, BC is remote and must be staffed around the clock, even though there is not enough work to keep the force busy. This artificially inflates the maintenance costs. In spite of these circumstances the electric locomotive maintenance costs are less than half of the costs incurred by BC Rail diesels operating in similar service.

I am familiar with a number of railroad electrification studies done by various freight railroads over the years and personally directed such a study when working for the Illinois Central Railroad (ICRR) in the early 1970's. The ICRR had a maintenance costing system that was detailed enough to allocate maintenance activity to literally hundreds of individual diesel locomotive components. What we did at that time was to determine the cost of maintaining the diesel engine-generator and their subsystems for a number of different locomotive models and subtracted this from the total maintenance cost per unit. We then determined the cost to maintain electric locomotive items that would essentially replace the diesel engine-generator system such as pantographs, circuit breakers, thyristors, reactors, transformers, etc. and added it to the remaining cost of the diesel locomotive. This technique gave us a good idea, based on existing freight railroad experience, of what to expect in the way of electric locomotive maintenance costs. The results determined by the ICRR and other railroads using similar techniques varied slightly by locomotive model and service conditions, but showed that an electric locomotive would be expected to cost 40-50% of a diesel under similar operating conditions on a per unit basis. This is how railroads in the rest of the world usually justify electrification and the results verify the analysis.


There is no apparent reason why this analysis wouldn't be applicable to commuter service. Our concern is that a relatively low mileage commuter locomotive historically costs more to maintain on a per mile basis than a long distance main line unit, because the cost is influenced more by the relatively fixed costs of daily inspections and servicing. As stated in our September 5, 1991 letter to Mr. Leonard of the California Transportation Commission, a major eastern commuter agency reports a fully loaded cost of \$4.70 per diesel locomotive mile for a mixed age fleet. Other commuter agencies have discussed figures of between \$3.50 - \$4.50 per mile. The cost figures can significantly change for both commuter and freight operations depending on whether the engine and

locomotive rebuilds are treated as operating cost or recapitalization; they are a real cost in either case.

Based on the above discussion, we would be comfortable using a figure of about \$4.00 per commuter diesel mile for long term average maintenance versus \$2.00 per electric locomotives in commuter service. This would translate into an annual savings of about \$6 million per year for the year 2010 commuter schedules using a 260 day operating year. Savings would be proportionally greater for 7 days a week service. A similar comparison for freight, using perhaps \$1.50 per diesel unit mile, and Amtrak, using perhaps \$2.00 per diesel unit mile, should be done.

- 2 Under Section 6.5.3, other facilities maintenance, we cannot agree that track maintained for either 80 mph passenger comfort or main line freight (FRA track class 3-5) should require any extra track surfacing if 48" wide pantograph wear strips are used. We are also unaware of any special requirements that would cause the cost of track maintenance equipment to be significantly greater than the same equipment used on a non-electrified line.
- 3 The section on traction power system maintenance is essentially sound, although we would expect to see a higher ratio of unscheduled maintenance in comparison to the scheduled activity.

Sincerely,


Richard U. Cogswell
Engineering

cc: B. Nestande
B. Shipley

7 – NORTH COUNTY TRANSIT DISTRICT

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
 DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
 NORTH SAN DIEGO COUNTY TRANSIT
 DEVELOPMENT BOARD**

Comment/Ref. No.	Disposition	Comments
1	E	
2	E	
3	E	
4	E	
5	E	
6	A	
7	A	
8	E	
9	E	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.



March 11, 1992

Mr. Bruce Nestande, Chairman,
Regional Rail Electrification Task Force
Southern California Regional Rail Authority
818 West 7th St. Suite 700
Los Angeles, CA 90017

RE: COMMENTS ON THE DRAFT SOUTHERN CALIFORNIA ACCELERATED
RAIL ELECTRIFICATION PROGRAM

Dear Mr. Nestande:

North County Transit District (NCTD) staff has reviewed the above referenced document. We are impressed with the amount of data that has been compiled and evaluated in such a short period of time. In general, NCTD agrees with the findings and the recommendations, however, one issue seems to have been overlooked.

- 1 The report never shows what the total cost of electrification would be on the high side. The report indicates that the freight railroads, the parties that own and control a vast majority of the route miles under consideration, believe that the construction costs of electrification have been underestimated. The report notes that the cost of re-equipping the local rail operations with new electric locomotives is not included either. The omission of these costs presents an unrealistic picture of the financial impact of railroad electrification.

- 2 Chart ES-7, on page ES-10, for example, shows the "Capital Cost/Ton of Nox Reduced In The South Coast Air Basin". But the evaluation does not include the cost of locomotives nor electrification of the rail lines outside of the Los Angeles Basin. Thus the chart actually shows only a portion of the capital costs. With regards to the freight operations, the chart only accounts for electrification of approximately half the distance required for operation. The railroads made this point repeatedly during the Planning, Engineering, Operations and Maintenance Committee meetings. Locomotives are estimated to add another \$1.5 billion to the capital costs. A new chart, showing a capital cost per ton that includes these costs, should be added to the final report.

Mr. Bruce Nestande

March 11, 1992

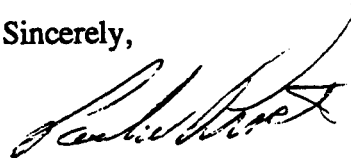
Page -2-

3

The data developed indicates that the railroads will never be a major contributor to the air quality problem in the Los Angeles Basin, even with no improvement in rail technology and a 70% private auto conversion to electric. Yet, the rail mode is expected to make the greatest contribution. Other modes contribute a far greater percentage of the emissions. Focusing on alternative fuels and electric transit (trolley buses, light and heavy rail systems) may be a more appropriate and cost-effective approach to the air quality issue within the Los Angeles Basin.

Thank you for the opportunity to participate in this most interesting project. If you have any questions, please contact Bill Farquhar of my staff at (619) 967-2864.

Sincerely,



Paul W. Price

Director of Service Development

PWP/cjc

Southern California Regional Electrification Program

DATE 3/12/92

REVIEW COMMENTS

SHEET 1 OF 2

REVIEWER William T. Farquhar ORGANIZATION & DIVISION NYDCTDB (North San Diego County
 SUBMITTAL _____ NAME AND DATE OF ISSUE _____ Transit Development Board)

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
4		General	The consulting team did a fine job in	
		Comments	gathering data. However, in attempting to	
			keep the costs "realistic", the consultants	
			produced figures that may be significantly	
			low. Charts should be added showing the	
			railroad preferred clearances, as well as	
			locomotive costs. The cost of electrification	
			to the freight crew change point (San Luis	
			Obispo, Bakersfield, Barstow, Yermo & Yuma)	
			should be included. The report appears	
			concerned more with keeping the costs down	
			than showing the total financial impact.	
			Amtrak's Boston-New Haven electrification	
			project, including all improvements is almost	
			\$9,000,000 per mile. Total costs for	
			Southern California, including all factors,	
			are never shown. The report only shows the	
			costs assuming minimum clearances. A cost-	
			effectiveness chart, evaluating the cost-	
			effectiveness at the high end, should be added.	

Southern California Regional Electrification Program

DATE 3/12/92

REVIEW COMMENTS

SHEET 2 OF 2

REVIEWER William T. Farquhar ORGANIZATION & DIVISION NYDCTDB (North San Diego County

SUBMITTAL _____ NAME AND DATE OF ISSUE _____ Transit Development Board)

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
5	ES-10	Exec. Summary	Graph & Analysis should include costs reflected in notes 1 & 2, perhaps as an additional graph.	
6	ES-7	Exec. Summary	The percentage that is contributed by trucks should be shown.	
7	ES-8	Exec. Summary	A graph that shows the percentage of emissions from all sources in 2010, not just rail operations.	
8	ES-14	Exec. Summary	Show costs with locomotive and freight railroad preferred clearances.	
9	ES-16	Exec. Summary	Add new table showing costs with railroad preferred clearances.	

8 – STATE OF CALIFORNIA PUBLIC UTILITIES COMMISSION

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
 DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
 PUBLIC UTILITIES COMMISION
 STATE OF CALIFORNIA**

Comment/Ref. No.	Disposition	Comments
1	E	
2	B	
3	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.



ADDRESS ALL COMMUNICATIONS
TO THE COMMISSION
107 SOUTH BROADWAY, ROOM 5109
LOS ANGELES, CA 90012
TELEPHONE: (213) 897-

Public Utilities Commission

STATE OF CALIFORNIA

March 11, 1992

FILE NO. 183/
SCRRA/elec

Norm Jester, Project Manager
SCRRA/LACTC Rail Electrification Task Force
818 West Seventh Street 9th Floor
Los Angeles CA 90017-3432

Dear Mr. Jester:

This comments on electric railroad vertical clearances and the draft Southern California Regional Rail Authority (SCRRA) Rail Electrification Study.

On behalf of Safety Division staff, I first wish to congratulate you, the SCRRA staff and consultant team, and the participants in the Electrification Task Force committees on the publication of your draft report. The Task Force undertook a tremendous effort in coordination, communication and research, and I believe you have successfully achieved your goal.

I understand that the Planning, Engineering, Operations and Maintenance (P.E.O. & M.) Committee report estimated the costs of altering grade separations, tunnels, and overhead structures, based on its "Minimum (and Tunnel Minimum) Recommended Requirements" for vertical clearances shown on page 5-29, under Section 5.2.1.1.

1 California does not have vertical clearance standards for 25 and 50 kilovolt electric railroads[1]. If and when there is a need the Commission can initiate an investigation which would develop these standards. All affected parties would be invited to participate in the rulemaking process. Safety Division staff would also participate, and make recommendations.

In such an investigation I believe staff would be most interested in investigating nationally recognized recommended practice, as shown in American Railway Engineering Association's (AREA) Manual for Railway Engineering, Chapter 33; Electrical Energy Utilization. We understand that the P.E.O. & M. Committee report's "Desired Recommended Requirements" generally correspond to AREA recommended practice[2]. These are greater than the "Minimum Requirements".

-
1. The Commission's General Order 95, Rule 74.4, requires 22.5 feet clearance between rail and trolley contact conductor for electric railroads of up to 5000 volts transporting freight cars (max height 15.5 ft).
 2. AREA clearance plus 2 inches equals "Desired" clearance.

March 11, 1992

NORM JESTER
Rail Electrification Task Force

Page Two

The present AREA Chapter 33 clearance requirements were developed some years ago, largely by and for railroads in the Eastern United States. Staff would investigate the unique requirements of railroads in the West. California's clearance requirements would have to accommodate their needs and those of their shippers. We would also support any future AREA Committee 33 research effort in this area. The P.E.O. & M. Committee report has included these requirements under "Railroad Requirements".

Ultimately, California's clearance requirements for high-voltage electric railroads would, by decision of the Commission, be included in General Order 95.

If you have any questions or comments please contact me at 415 557-2271, or Lou Cluster of my staff, Traffic Engineering Section - Los Angeles, at 213 897-2927.

Sincerely yours,



Alex E. Lutkus
LPC

ALEX LUTKUS, Program Manager
Rail Engineering Safety Branch
Safety Division

ALX/lc

Southern California Regional Electrification Program

DATE 3/10/92

REVIEW COMMENTS

SHEET 1 OF 1

REVIEWER Kenneth Koss ORGANIZATION & DIVISION CPUC/Transportation

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
2	2-1	2.1	Route miles don't match (lines 1,3 & 5) (Note pg. 10-4 agrees with page 2-4.)	
3	3-9	3.3.1.1	Last line of main paragraph shows "Route A"... should be "Route 4".	

9 – ATCHISON, TOPEKA & SANTA FE RAILWAY COMPANY

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
ATCHISON, TOPEKA AND SANTA FE
RAILWAY COMPANY**

Comment/Ref. No.	Disposition	Comments
1	E	
2	B	
3	A	
4	E	
5	E	
6	B	
7	B	
8	B	
9	E	
10	E	
11	E	
12	B	
13	A	Language to be added
14	E	
15	E	
16	B	
17	E	
18	E	
19	E	Agree with comment
20	E	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
 DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
 ATCHISON, TOPEKA AND SANTA FE
 RAILWAY COMPANY (Continued)**

Comment/Ref. No.	Disposition	Comments
21	E	
22	B	
23	E	
24	E	
25	E	Agree with comment
26	E	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.



The Atchison, Topeka and Santa Fe Railway Company



1700 East Golf Road
Schaumburg, Illinois 60173-5860

March 13, 1992

Mr. Bruce Nestande, Chairman
Regional Rail Electrification Task Force
Southern California Regional Rail Authority
818 West 7th Street, Suite 1100
Los Angeles, California 90017

Re: Southern California Accelerated Rail Electrification Program

Dear Mr. Nestande:

Herewith are review comments of The Atchison, Topeka and Santa Fe Railway Company ("Santa Fe") on the draft report of the Task Force, dated January 31, 1992. Where possible, we have endeavored to conform our comments to the review sheet format furnished; however, we have made separate comments as to the environmental analysis.

Santa Fe wishes to state that its failure to comment upon any particular item or conclusion in the draft report should not be construed as agreement or acceptance of the particular item or conclusion expressed.

Very truly yours,

L. F. Fox
Assistant Vice President-
Asset Management

LFF\MAS\dmp

Attachments

SOUTHERN CALIFORNIA REGIONAL ELECTRIFICATION PROGRAM

**REVIEW COMMENTS OF THE ATCHISON, TOPEKA
AND SANTA FE RAILWAY COMPANY**

DATE: 3-12-92

REF. NO.	DOC. SECTION NUMBER	COMMENTS	RESPONSE\ACTION
1	3.0	<p><u>Evaluation of Candidate Routes</u> - Some of the ratings and weightings appear to be arbitrary and some material would be more effectively presented in appendices, in order to make the section more easily understandable. In addition, a schedule or appendix listing the major system equipment and sub-element quantities for each route or segment would be helpful for review of capital cost estimates.</p>	
2	3.2	<p>Operating/Maintenance Costs were not in final draft (2/10) of Transp. Cost - effectiveness</p>	
3	3.3	<p>Table 3-2 SF-SP-UP Corridor assumes UP & SP & SF will agree to shared corridor, but that has not yet happened.</p>	
4	Crit. 3.0	<p>Santa Fe would consider criteria 3.0 and 7.0 as paramount in any change in current mode of operation. From a private industry perspective, the rating is too low.</p>	

SOUTHERN CALIFORNIA REGIONAL ELECTRIFICATION PROGRAM

**REVIEW COMMENTS OF THE ATCHISON, TOPEKA
AND SANTA FE RAILWAY COMPANY**

DATE: 3-12-92

REF. NO.	DOC. SECTION NUMBER	COMMENTS	RESPONSE \ ACTION
5	Crit. 7.0	Santa Fe would consider criteria 3.0 and 7.0 as paramount in any change in current mode of operation. From a private industry perspective, the rating is too low.	
6	4.0	<u>Next Steps</u> - The report makes some reference to an "Early Action Electrification" Program, but this will need to be supplemented by an overall Master Implementation Program. Among the items to be considered would be annual delivery requirements of major equipment, such as substation transformers and electric locomotives. Also, some discussion of recent procurement experience would be useful, including consideration of competition, technological state-of-the-art, and project specific production schedules. The brief coverage of this subject in section 5.3.3 should be expanded.	
7	5.1.1.2	<u>Power Supply System Types</u> - This paragraph should also state that some increase of cost for autotransformer systems is offset by reduced cost of electrical interference mitigation measures needed in some areas.	

SOUTHERN CALIFORNIA REGIONAL ELECTRIFICATION PROGRAM

**REVIEW COMMENTS OF THE ATCHISON, TOPEKA
AND SANTA FE RAILWAY COMPANY**

DATE: 3-12-92

REF. NO.	DOC. SECTION NUMBER	COMMENTS	RESPONSE\ACTION
8	5.1.2.3	<u>System Voltage</u> - The Emergency Minimum Voltage for 25 KV operation in Table 5-2 should of course read 17.5 KV.	
9	5.1.3.1	<u>Utility Power Supply</u> - 115 KV is usually the best choice when there is any choice available. The use of 69 KV supply is not recommended for any route where the heavier power demand for freight service is involved.	
10	5.1.6.13	<u>Equipment and Real Estate Cost</u> - In the case of rail electrification for freight operation involving higher power demand than for the commuter only case, the reduction of overhead conductor size for 50 KV usually fully offsets the increased cost of insulation. The appropriate entry on Table 5-4 should show an equal status between the two voltage choices.	

SOUTHERN CALIFORNIA REGIONAL ELECTRIFICATION PROGRAM

**REVIEW COMMENTS OF THE ATCHISON, TOPEKA
AND SANTA FE RAILWAY COMPANY**

DATE: 3-12-92

REF. NO.	DOC. SECTION NUMBER	COMMENTS	RESPONSE\ACTION
11	5.1.7.5	<p><u>Conductor Sizes and Materials</u> - Although not stated, the conductor sizes quoted appear to be relevant only for the 25 KV "Commuter Only" case. Larger conductors would be needed for main line freight operation at either voltage, particularly if heavy unit coal trains are operated in the region.</p>	
12	5.4 and 6.0	<p><u>Operational Impacts and Operational Considerations</u> - The introduction of electric locomotives into a completely diesel-electric powered railway has ramifications that should be addressed. The Section 6.0 in the Report provides a brief description of existing route geography, an incomplete Forecast Rail Traffic Growth Section, and an opening statement for a section titled "Future Railroad Operations." The Report should address the full gamut of management issues associated with introducing partial electric locomotive operation, including the following:</p>	

SOUTHERN CALIFORNIA REGIONAL ELECTRIFICATION PROGRAM

**REVIEW COMMENTS OF THE ATCHISON, TOPEKA
AND SANTA FE RAILWAY COMPANY**

DATE: 3-12-92

REF. NO.	DOC. SECTION NUMBER	COMMENTS	RESPONSE\ACTION
		<p>A. <u>Operational</u></p> <ul style="list-style-type: none"> • Effects of operating short segments of a mainline railway using electric locomotives, including change out of motive power at each end on a regular basis or whether the segment is between major terminal points. • Is the operational characteristic (drag vs. manifest) suitable for electric locomotive operation, or will it require changes. • Effect of short-time overload capacity of electric locomotives on dispatch policy. • Limited route availability; the electric locomotive can only operate over electrified portions of the route and cannot be detoured to avoid derailments. • Loss of locomotive flexibility; diesel-electric locomotives can be transferred to other regions to meet changing demands (e.g., seasonal). 	

SOUTHERN CALIFORNIA REGIONAL ELECTRIFICATION PROGRAM

**REVIEW COMMENTS OF THE ATCHISON, TOPEKA
AND SANTA FE RAILWAY COMPANY**

DATE: 3-12-92

REF. NO.	DOC. SECTION NUMBER	COMMENTS	RESPONSE\ACTION
		<p>C. <u>Operating and Maintenance Costs</u></p> <p>Are the railroads responsible for the O&M costs or will there be cost-sharing with the SCRRRA? The report should attempt to quantify these costs.</p> <p>D. <u>Liability</u></p> <p>Operating electrified locomotives introduces an additional interface with the public regarding liability issues such as interference with household electronic components, possible adverse biological effects, aesthetic intrusion into the community, and the safety implications of high-voltage equipment. What costs are associated with mitigating the potential liability exposure and who pays? These are issues that the Report should address from both a SCRRRA and a railroad standpoint.</p>	
13	12.2.1	A problem may occur with SCE's desire to own the electric facilities on private RR rights of way.	

SOUTHERN CALIFORNIA REGIONAL ELECTRIFICATION PROGRAM

**REVIEW COMMENTS OF THE ATCHISON, TOPEKA
AND SANTA FE RAILWAY COMPANY**

DATE: 3-12-92

REF. NO.	DOC. SECTION NUMBER	COMMENTS	RESPONSE\ACTION
18	12.3.5.1	It is unlikely that the RR's will voluntarily participate financially in electrification for such a small (but important) part of their total systems. A full financial impact study of this matter (including new locomotives as well as possibly losing traffic to trucks because of higher costs) would probably not recommend spending limited capital funds for this project.	

more cost effective so that the marginal cost effectiveness of the electrification would be much worse.

Alternative Fuels

24 The use of alternative fuels such as natural gas was not considered in the cost effectiveness calculations. Some of the alternatives to the existing diesel fuel or to electrification reductions in emissions. In addition, the infrastructure costs would be much lower in comparison to electrification. The alternatives should receive much more consideration because cost effectiveness is not the only criteria which must be evaluated to determine if an emission reduction technique should be implemented. For example, natural gas has the potential for significant emission reductions but probably not to the degree of electrification; has much lower infrastructure costs compared to electrification; can be phased in gradually thus getting partial benefits immediately; and is suitable for both yard and local engines. Such a package of desirable features deserves more consideration.

Increased Truck Traffic

25 The burdening of the rail industry with the billions of dollars of increased costs will affect the competitive position of railroads versus trucks. Much of the rail traffic is highly truck competitive so that the increased rail costs would cause modal shifts to combination trucks. This would lead to increases in NOx emissions, reduced public safety, and more congestion and delays on southern California roadways. The potential environmental, safety, and delay effects are very significant and must be considered prior to any decision on electrification.

Conclusion

26 Santa Fe believes the electrification analysis is incomplete and flawed mostly because of the time allowed for completion. The studies were not sufficiently rigorous to support regulations. If further studies do not address the flaws in the existing study, Santa Fe cannot accept the conclusion that electrification is cost effective, feasible, necessary, and desirable to improve air quality in southern California.

10 – SAN DIEGO ASSOCIATION OF GOVERNMENTS

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
 DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
 SAN DIEGO ASSOCIATION OF GOVERNMENTS**

Comment/Ref. No.	Disposition	Comments
1	A	
2	A	
3	A	
4	A	
5	E	Cost effectiveness threshold identified by SCE
6	E	Answer: No
7	B	Answer: Yes, 20 of 53
8	C	Inconsistent with report format
9	E	
10	E	Agree
11	E	Roles for these agencies begin later in the process

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.



**San Diego
ASSOCIATION OF
GOVERNMENTS**

Suite 800, First Interstate Plaza
401 B Street
San Diego, California 92101
(619)595-5300 Fax (619)595-5305

February 26, 1992

**Mr. Norm Jester
Project Manager
Regional Rail Electrification Task Force
SCRRRA
818 West 7th St., Suite 1100
Los Angeles, CA 90017**

Re: Accelerated Rail Electrification Draft Executive Summary

Dear Mr. Jester:

Thank you for the opportunity of reviewing the Draft Executive Summary of the "Southern California Accelerated Rail Electrification Program" (Feb. 10, 1992). Staff and consultants are to be commended for a very comprehensive and organized review of a complicated issue. I've attached SANDAG staff's comments.

It is our belief that the LOSSAN rail corridor south of Fullerton would not be a cost effective candidate for electrification. This is primarily because of the limited freight activity on this section of the corridor as compared to that north of Fullerton. It would be more productive, for air quality purposes, within San Diego County to electrify transit routes to gain additional NOX reductions.

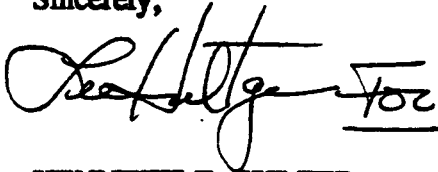
Related to electrification, SANDAG is currently developing a comprehensive energy plan and program for the San Diego region. Involving local governments, the utilities, the state and the private sector, the plan will outline the region's energy needs under a developing Growth Management Strategy. One of the elements of the plan will be to provide an analysis on transportation energy issues on which to base the revision of the energy element of the Regional Transportation Plan.

With this in mind, the Executive Committee of the SANDAG Board of Directors on February 14, 1992, recommended support of SB 1167 by Senator Killea. As you know, this bill would require that the impact to utility rate payers, caused by an increase to electrify railroads, be analyzed. We have asked that this analysis include San Diego.

Mr. Norm Jester
February 26, 1992
Page 2

Again, thank you for the opportunity to review the draft rail electrification plan. Please call Michael Zdon of my staff at (619) 595-5367 if I can provide any additional clarification.

Sincerely,

A handwritten signature in black ink, appearing to read "Ken Sulzer" with a stylized flourish at the end. The signature is written over a horizontal line.

KENNETH E. SULZER
Executive Director

KES/MZ/ah

Enclosure

cc: Tom Hawthorne, CTC
Dean Dunphy, CTC
Adrienne Brooks, OCTA
Paul Price, NSDCTD
Paul Sidhu, APCD
Mark Nelson, SDG&E

Southern California Regional Electrification Program

DATE 2/10/92

REVIEW COMMENTS

SHEET 1 OF 3

REVIEWER Michael Zdon ORGANIZATION & DIVISION SANDAG

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
1	ES-3	Key Findings	Routes 12, 13 (and possibly 11) should be called out as non cost-effective (i.e., greater than \$30,000/ton)	
2	ES-6	Funding	Should SDG&E be called out on LOSSAN Corridor?	
3	ES-6	Air Quality	Does the analysis assume 70% electric vehicles in 2010? Since that may be "optimistic" how would diesel trains compare with 25% or 50% electric vehicles?	
4	ES-6	Regulatory	Should SDG&E be added as an "investor owned" utility?	
5	ES-10	Exhibit ES-7	The line denotes "30,000/ton reduced as cost-effective (San Diego would place cost effectiveness closer to \$10,000/ton reduced as cost-effective).	
6	ES-13	Prioritized Routes	If you took away the credit for freight from Fullerton North (on LOSSAN), would the LOSSAN Corridor still be cost-effective?	

Southern California Regional Electrification Program

DATE 2/10/92

SHEET 2 OF 3

REVIEW COMMENTS

REVIEWER Michael Zdon ORGANIZATION & DIVISION SANDAG

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
7	ES-17	Clearances	Are there any of the 53 or so bridges (out of 207) that would need to be expanded along LOSSAN?	
8	ES-21	Funding	I would highlight or underline the sentence that reads: <u>"Any current sales tax or state grant funds which might be programmed into rail electrification will come at the expense of other local and regional transportation projects."</u>	
9	ES-21	FCR Program	What are the maximum FCR monies available regionally? Note: Phasing of electrification by line assumes local funding issues can be resolved The LOSSAN line (for example) should not be shown in the 2000-2010 time frame until all funding issues can be more clearly defined.	
10	ES-25	Res of Policy Issues	1st Bullet: Alternative fuels should be considered as permanent on some "limited cost effective" lines rather than just <u>"interim."</u>	

Southern California Regional Electrification Program

DATE 2/10/92

REVIEW COMMENTS

SHEET 3 OF 3

REVIEWER Michael Zdon ORGANIZATION & DIVISION SANDAG

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
11	ES-26	Table ES-10	If the LOSSAN corridor is electrified as priority #11 shouldn't SANDAG and APCD be listed? (Also LOSSAN RCA)	

11 – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT**

Comment/Ref. No.	Disposition	Comments
1	D	Disagree with use of range
2	A	
3	C	
4	C	
5	A	
6	A	
7	A	
8	C	
9	C	Percentage is important in determining relative responsibility for funding and emissions reductions.
10	A	
11	C	Useful for defining role of alternate control technologies.
12	C	Both values relevant for policy makers.
13	C	
14	E	
15	A	
16	A	
17	A	
18	E	
19	A	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.



**South Coast
AIR QUALITY MANAGEMENT DISTRICT**

21865 E. Copley Drive, Diamond Bar, CA 91765-4182 (714) 396-2000

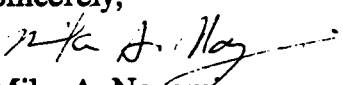
March 12, 1992

Mr. Norm Jester
Southern California Railroad Authority
10th Floor
818 West 7th St.
Los Angeles, CA 90017

Dear Norm:

Enclosed, please find the District staff's comments on the Train Electrification Executive Summary Report. Over-all, we think the Executive Summary should be slightly modified to better present the report contents.

Sincerely,


Mike A. Nazemi
Planning Manager
Office of Planning & Rules

P.S. As of today, we have not received any invoices from the LACTC.

MAN:bo

Enclosure

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 1 OF 10

REVIEWER Mike Nazemi

ORGANIZATION & DIVISION South Coast A.Q.M.D.
Planning and Rules Division

SUBMITTAL 1

NAME AND DATE OF ISSUE Draft Executive Summary 2/10/92

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
1	ES-1,3		The overall emission reduction (28 tons per day NOx) and cost effectiveness range (\$3,800 - \$10,700 per ton of NOx reduced) of rail electrification should be stated in the beginning of the Executive Summary.	
			In addition, the cost effectiveness of rail electrification in the South Coast Air Basin is a key finding and should be included as a separate paragraph in the KEY FINDINGS section of the Executive Summary.	
2	ES-1		The statement indicating that the contents of the report represent the consensus of the overwhelming majority of professional opinion is not a proper characterization. Rather, the Executive Summary should specifically identify the origin (e.g., consultants under contract by SCRRRA,	

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 2 OF 10

REVIEWER _____

ORGANIZATION & DIVISION _____

SUBMITTAL _____

NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
2(Cont)			SCRRA staff, District staff, etc) of each major section of the report. This will assist the reader in easily identifying the point of view being delineated for each section of the report.	
3	ES-3		The Environmental Assessment Committee was instructed not to consider the Consolidated Freight Corridor (Route 1) for air quality impacts due to the high cost of consolidating rail lines. Therefore, Route 1 should not have been included in the prioritization of candidate routes since air quality impacts were not determined.	
4	ES-3		The cost to electrify 806 route miles of candidate rail lines should be clarified to be consistent with the cost effectiveness analysis. Specifically the cost to electrify	

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 3 OF 10

REVIEWER _____ ORGANIZATION & DIVISION _____

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
4(Cont.)			rail lines only in the South Coast Air Basin should	
			be identified. In addition, it should be	
			noted that electrifying rail lines outside of	
			the South Coast Air Basin has not been evaluated	
			for cost effectiveness nor has the need to electrify	
			lines outside of the Basin been clearly established.	
5	ES-6		The first phrase of the first paragraph ("To the extent	
			that electrification costs are not offset by easily	
			quantified economic benefits") should be deleted since	
			it is nonsubstantive.	
6	ES-6		The statement that current NOx emissions from	
			railroad operators constitute less than 2.6% of the	
			total NOx emissions in the South Coast Air Basin is	
			an improper characterization. The report should state	

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 4 OF 10

REVIEWER _____

ORGANIZATION & DIVISION _____

SUBMITTAL _____

NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
6(Cont)			that if locomotive emissions are left uncontrolled,	
			and other sources were reduced as planned they would	
			constitute approximately ten percent of the total NOx	
			inventory in the year 2010.	
7	ES-6		The statement indicating that the Air Quality Analysis	
			assumes 70% electrification of the automobile fleet	
			and no improvement in diesel locomotive technology	
			by 2010 is inaccurate. Rather this statement should	
			be modified to state that the analysis assumes	
			reductions in automobile emissions vis-a-vis	
			ARB's low emission vehicle regulations (which are	
			projected to attain 17% electrification of the	
			automotive fleet), and a 30% reduction in in-use	
			locomotive NOx emissions as projected by ARB staff.	

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 5 OF 10

REVIEWER _____

ORGANIZATION & DIVISION _____

SUBMITTAL _____

NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
8	ES-6		The statement indicating that delaying the planned commuter rail network until electrification takes place could subject the region to federal sanctions is inaccurate. It would be very difficult for the federal government to justify sanctions for failure to implement a control strategy (i.e. the SCRRA commuter rail network) that will increase NOx emissions.	
9	ES-6		The statement indicating that commuter rail operations will constitute about 5.4% of the total NOx emissions for rail operations in 2010 should be deleted. It is not useful to identify the emissions contribution of a specific component of the overall rail electrification strategy. In order to attain health based ambient air quality standards, emissions from large	

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 6 OF 10

REVIEWER _____ ORGANIZATION & DIVISION _____

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
9(Cont)			and small sources needs to be controlled.	
10	ES-7		The pie chart should be modified to indicate the 10% contribution to Basinwide NOx emissions that locomotives would make if left uncontrolled.	
11	ES-8		The pie chart should be deleted. It is not useful to breakdown railroad NOx emissions into four components since it has been demonstrated that all of these components (except yard/local) form the basis for a cost effective rail electrification control strategy. In order to attain health-based ambient air quality standards, all sources, including small sources, need to be controlled. (See comment 8)	

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 7 OF 10

REVIEWER _____

ORGANIZATION & DIVISION _____

SUBMITTAL _____

NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
12	ES-9		The bar chart indicating emission reductions for each commuter and freight line should be modified to be consistent in format with the cost effectiveness information supplied in the Environmental Assessment Report. Specifically, cost effectiveness values incorporating both commuter and freight implementation should only be utilized.	
13	ES-10		The cost effectiveness for each commuter line (assuming commuter only implementation) should be deleted. This same information is conveyed in the Redlands Commuter line (commuter plus freight implementation scenario).	
14	ES-11		In-Basin routes miles should be shown in Table ES-1, in order to be consistent with the cost effective analysis.	

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 8 OF 10

REVIEWER _____ ORGANIZATION & DIVISION _____

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
15	ES-13		The last sentence on this page indicates that all parties generally concurred with the estimated unit costs. This statement does not properly characterize the fact that there was significant disagreement among major participants (SCE and consultants hired by SCRRA) regarding the overall costs of rail electrification.	
16	ES-18		The section which describes legal jurisdictions over locomotive emissions does not include any mention of the District's authority to set an emission cap over rail operations in the Basin	

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 9 OF 10

REVIEWER _____ ORGANIZATION & DIVISION _____

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
17	ES-29		The disclaimer should be moved to the front of the report.	
18	None		A statement should be included regarding the equity issue between trains and trucks in terms of planned emission reductions for both of these two source categories. Specifically, particulate and NOx emission levels for new heavy-duty vehicles have already been reduced compared to uncontrolled levels by 75% and 60 %, respectively due to recently adopted emission standards. In addition, ARB is currently developing Heavy-Duty Low-Emission Vehicle regulations that will result in further substantial emission reductions for this source category.	

Southern California Regional Electrification Program

DATE March 12, 1992

REVIEW COMMENTS

SHEET 10 OF 10

REVIEWER _____

ORGANIZATION & DIVISION _____

SUBMITTAL _____

NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
19	None		The EMF Report is not addressed in the Executive Summary. At a minimum, the conclusions contained in the EMF Report should be summarized in the Executive Summary.	

12 – UNION PACIFIC RAILROAD COMPANY

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
UNION PACIFIC RAILROAD COMPANY**

Comment/Ref. No.	Disposition	Comments
1	E	Agree with comment
2	B	
3	B	
4	B	
5	B	
6	B	
7	B	
8	E	
9	E	Agree with comment
10	B	
11	B	
12	B	
13	B	
14	D	Proposed configuration achieves 78% emissions reduction
15	B	
16	B	
17	B	
18	B	
19	B	
20	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
UNION PACIFIC RAILROAD COMPANY (Continued)**

Comment/Ref. No.	Disposition	Comments
21	E	\$40 million budgeted for locomotive maintenance facilities
22	B	
23	B	
24	B	
25	B	
26	B	
27	B	
28	B	
29	B	
30	B	
31	B	
32	B	
33	B	
34	E	
35	D	Traffic Growth is expected to justify change in operating practice
36	E	
37	C	Data is consistent with assumptions
38	B	
39	B	
40	E	Depends upon assumed limits of electrified territory on SP Coast Line

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
UNION PACIFIC RAILROAD COMPANY (Continued)**

Comment/Ref. No.	Disposition	Comments
60	E	
61	B	Comment reflected in Revised Executive Summary
62	E	Agree with comment

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

Southern California Regional Electrification Program

DATE 3-12-92

REVIEW COMMENTS

SHEET 1 OF 1

REVIEWER Mark Reimers ORGANIZATION & DIVISION Union Pacific Railroad

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
1	11-16	11.1.3	Locomotive (Electric) Cost & Operating & Maintenance Costs should be included in cost effectiveness figures.	

Southern California Regional Electrification Program

DATE 2-15-92
SHEET 1 OF 2

REVIEW COMMENTS

REVIEWER Julie Phillips ORGANIZATION & DIVISION Union Pacific Railroad
SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
2	12-12	12.2.3.1	End of line 5 - "appropriate level of depth"	
3	12-13	12.2.3.1.1	"In 1990, its net income was \$534 million Move to beginning of paragraph.	
4	12-15	12.2.5	Last two lines should read: "the approval process to obtain participation and a judgment . . ."	
5	12-16	Exhibit 1	Column - "Cost of capital , etc." Entry line 5,6,7 should all reference footnote(5). Footnote (5) mistakenly refers to SCE cost of capital instead of the railroads.	
6	12-11	12.2.2.3.1	Paragraph 2 should "appropriate" read "appropriated". Also there is a discrepancy between millions and billions.	
7	12-24	12.3.5.1	Second paragraph - last sentence makes no sense. Needs clarification. Funding Column - 40% SCE/SCRRA - Column totals on these two charts are inconsistent.	
8		Chart B and Chart C	Even though SCE would have to collect same amount of revenues for either <u>(???)</u> Chart B does not reflect their cost of capital.	

Southern California Regional Electrification Program

DATE 2-15-92

SHEET 2 OF 2

REVIEW COMMENTS

REVIEWER Julie Phillips ORGANIZATION & DIVISION Union Pacific Railroad

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
9		Chart C	Funding column - SCE's totals reflect their cost of capital including O&M costs. The railroads totals do not include cost of capital. In addition, the RR's cost of capital in footnote 4 does not include O&M costs.	
10		Charts E & F	Same comments as for Charts B & C.	

Southern California Regional Electrification Program

DATE 2-13-92

REVIEW COMMENTS

SHEET 1 OF 12

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.
 SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
11	2-1	2.1.1	Refers to Figure 2-1, figure missing.	
	2-5	2.1.1	Figure 2-1 is missing.	
12	2-2	2.1.2	Detailed route descriptions to be in Appendix 2-1. Appendix missing.	
13	3-4 to 3-21	3.3.1 to 3.3.6	Much material is missing.	
14	4-6 to 4-7	4.1.8 and 4.2	NOx reduction will not be achieved by 2010 goal - Why pursue costly project that can't reach goals?	
15	4-6 to 4-9	4.2	Seems that financial commitment from RRs is to come BEFORE the electricity rate issue is settled! This could be a problem.	
16	5-12	Table 5-2	25kV emergency min. voltage is 17.5kV.	
17	5-24	Table 5-4	Table 5-4 doesn't have bold face to indicate more desirable situation.	
18	5-32	5.2.1.4	No estimate of bridge clearance section.	
		5.2.2	No grade crossing section!	

Southern California Regional Electrification Program

DATE 2-13-92

SHEET 2 OF 12

REVIEW COMMENTS

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
19	5-37	5.4	Non-Electrified Service Section is confusing and seems to indicate exceptions to all electric policy.	
20	5-37	5.4	Electric to diesel conversion is incomplete	
21	5-37	5.4	Locomotive maintenance facilities not addressed.	
22	6-1	6.1	Summary of track types is incomplete in text, but is graphed in Figure 6-1.	
23	6-2	6.1.1.1	Schematic Exhibit 6-3 is missing.	
24	6-3	6.1.1.2	Schematic Exhibit 6-4 is missing.	
25	6-4	6.1.1.3	Schematic Exhibit 6-5 is missing.	
26	6-5	6.1.1.4	Schematic Exhibit 6-6 is missing.	
27	6-5	6.2.4.1	Sections 6.2.2 and 6.2.3 is missing.	
28	6-6	6.2.4.1	Table 6-? incomplete and/or has duplicate lines.	
29	6-6	5.3	Section missing.	
30	7-2	7.2.3	Table 7-2 and Table 7-4 are the same. They should be different.	
	7-6			

Southern California Regional Electrification Program

DATE 2-25-92

SHEET 3 OF 12

REVIEW COMMENTS

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.
 SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
31	7-8	B - Life Cycle Issues	Statement: "There are no electrified freight railroads in the U.S.", is false. At least three are currently in operation.	
32	7-9	Table 7-5	2nd sentence or note refers to "inadequate" tractive effort. Tractive effort is a function "weight on drivers" when horsepower is equivalent. Tractive effort will not increase when HP doubles unless weight increase proportionally.	
33	3-5 to 3-6	Tables 3-1 and 3-2	Tables 3-1 and 3-2 are incomplete.	
34	6-10	6.2.2	Item 1: "Virtually all new traffic is being handled in unit trains...", is false. UPRR is facing growth in manifest freight (Boxcar) business. We run approximately 50% more manifest trains and 25% more locals in the Basin than 5 years ago. Marketing and sales may be able to quantify this.	

Southern California Regional Electrification Program

DATE 2-13-92

SHEET 4 OF 12

REVIEW COMMENTS

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
35	6-10	6.2.3.1.3	Paragraph 2: SP will not change operating practice (nor would UPRR) unless a firm economic benefit would justify the proposed change to SP management.	
36	6-17	Table 6-4	Victorville to Barstow is shown as remain 2 main tracks. This may need to be 3 tracks! Our biggest non-terminal capacity issue is: Line capacity on the ATSF. This is also true for Barstow-Daggett.	
37	6-18	Table 6-5	The number of "UP Diesel Powered" trains on the "Pomona Ontario SP" line segment should be 0 due to these trains operating via Riverside Jct.	
38	6-18	Table 6-5	Amtrak: AMTK 1 and 2 currently operate on SP from LAUPT to Yuma. AMTK 3 and 4 currently operate on ATSF from Barstow to LAUPT via Pasadena Sub. AMTK 35 and 36 currently operate on ATSF from Barstow to LAUPT via San Bernardino Sub. The Table	

Southern California Regional Electrification Program

DATE 2-25-92

SHEET 5 OF 12

REVIEW COMMENTS

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.
 SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
38	6-18	Table 6-5	shows 4 AMTK from City of Industry to West Colton on SP, 4 from Keenbrook to Barstow to Yermo on ATSF/UP. This appears to be a reroute of either 3 and 4 or 35 and 36 via SP from West Colton to LAUPT and staying on ATSF from Keenbrook to Colton and serving San Bernardino.	
Cont.				
39	6-18	Table 6-5 (Continued)	This Amtrak reroute doesn't seem to be addressed in the write-up. It should also be noted that there are 4 Amtrak trains from Barstow to Daggett, not the 2 shown.	
40	6-19	Exhibit 6-9	Year 2000 portion: All Amtrak and Commuter Trains appear to be counted as electric in totals, but are not specified as such in the details.	
41	6-19	Exhibit 6-9	Year 2000 portion: West Colton/Yuma show 4 Amtrak trains, only 2 operate East of Colton. 2 move to ATSF and go to San Bernardino.	

Southern California Regional Electrification Program

DATE 2-25-92

SHEET 6 OF 12

REVIEW COMMENTS

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
42	6-20	Exhibit 6-10	Year 2000 portion: Shows 2 AMTK, Atwood/ San Bernardino, as electrified and 4 Diesel AMTK, San Bernardino/Barstow. Engine change at San Bernardino?? tractive effort.	
43	6-20	Exhibit 6-10	Year 2000: Should be 4 AMTK electric trains account 2 off SP at Colton. 2 from Colton to Atwood. This section seems to indicate that AMTK 35 & 36 continue to operate on ATSF via San Bernardino Sub and AMTK 3 and 4 reroute from Pasadena Sub to Consolidated Corridor at Colton and operate to LAUPT via City of Industry/SP/LAUPT.	

Southern California Regional Electrification Program

DATE 2-25-92

SHEET 7 OF 12

REVIEW COMMENTS

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.
 SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
44	6-1 to 6-40	Section 6	It appears that ATSF from San Bernardino to Keenbrook (Approx. 12 miles) is not to be electrified. This gap forces 4 Amtrak, 6 UP and 15 ATSF trains to be Diesel hauled and/or change power at San Bernardino, AMTRAK seems to be changing power at San Bernardino. UP and ATSF will use Diesel under wire for 160+ miles.	
45	6-1 to	Section 6 Continued	Not electrifying the 12 mile gap may lower capital costs but will greatly reduce the utility of electric locos. This should be a serious issue as it raises questions about number of electric unit and size of shops.	
46	6-21	Exhibit 6-11	Year 2000 portion: Amtrak shows to have 4 Diesel Powered Trains from LA via Riverside to Yermo. This seems to be a double-count of trains handled in Exhibits 6-9 and 6-10.	

Southern California Regional Electrification Program

DATE 2-25-92

SHEET 8 OF 12

REVIEW COMMENTS

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
47	6-24 to 6-29	Tables 6-7, 6-10, 6-11, 6-12	See Section 6 notes. If San Bernardino to Keenbrook is electrified, how many extra trains, units, etc. would be covered?	
48	6-2	Exhibit 6-1	Exhibit is missing.	
49	6-30 to	Tables 6-13, 6-14, 6-15	Route 12 ATSF - Ports to Barstow - Freight seems to indicate that electric locos from Barstow to San Diego freight service are included. This conflicts with previous data on not electrifying Keenbrook to San Bernardino.	
50	6-36	6.5.3	1st Paragraph: This section states that a high level of track maintenance will be required. It does not quantify what must change to prevent pantographs from coming out from under the wire. This should be developed as a change in FRA standards or some measurable geometric reference. As the railroads will still maintain their tracks; this might be a really large cost item.	

Southern California Regional Electrification Program

DATE 2-25-92
 SHEET 9 OF 12

REVIEW COMMENTS

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.
 SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
51	6-36	6.5.3	2nd Paragraph: I have no idea what would have to change in our on-track machinery to permit operation in electrified territory. Again no specifics and no cost data. To maintain our tracks to the "higher" standards specified in Paragraph 1, we might need more machinery. This machinery may be much more costly than existing machinery. This whole section is very vague but could be a large economic burden to the UP.	

Southern California Regional Electrification Program

DATE 2-25-92
 SHEET 10 OF 12

REVIEW COMMENTS

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.
 SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
52	6-39	6.5.4	Without energy cost/rate data, how can a good economic analysis of this project be performed. This should be a serious issue.	
53	6-39	6.5.5	Assuming "other facilities maintenance" costs as neutral is an error. 6-5-3 says that maintenance levels will increase.	
54	6-39	6.5.6	Energy, track maintenance and dispatching cost allocations should be known or a proposed method shown. These could also be big expenses to UPRR as well as affect working relationships between companies.	
55	6-39	6.6.1	Differences in operating philosophies may lead to an unequal distribution or costs and road failures if power is pooled. High tonnage/low speed operations are hard on locos and lead to higher failure, irrespective of preventative maintenance practices.	

Southern California Regional Electrification Program

DATE 2-25-92

REVIEW COMMENTS

SHEET 12 OF 12

REVIEWER S. J. Dolezal ORGANIZATION & DIVISION Union Pacific Railroad - Trans. Eval.
 SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
59	6-41	6.6.3.2	and return could be significant annual cost	
Cont.			and would contribute nothing to UPRR's	
			financial success.	
60	6-40	6.6	Dispatching of the Consolidated Corridor	
			is not addressed. This is a significant	
			issue as the short segments of various	
			lines will need to be coordinated to	
			operate successfully. This needs to be	
			resolved before the project is approved.	

UNION PACIFIC RAILROAD COMPANY

ENGINEERING DEPARTMENT



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1416 Dodge Street
Omaha, Nebraska 68179

Air Quality - California

March 17, 1992

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Mr. Bruce Nestande
Chairman, Rail Electrification Task Force
Southern California Regional Rail Authority
818 West 7th Street, Suite 1100
Los Angeles, CA 90017

Dear Mr. Nestande,

Union Pacific Railroad would like to go on record as concurring with the comments made by Mike Ongertth of the Southern Pacific on the SCRRA Rail Electrification Study. The concerns expressed by Mr. Ongertth reflect Union Pacific's concerns and should be an addition to our point-by-point comments already submitted.

61 Union Pacific would like to emphasize our full concurrence with Southern Pacific's comment that, "... the most cost-effective opportunity to reduce emissions is to promote a transportation system that directs container traffic off interstate trucks and off the Los Angeles region's freeways and on to an efficient, competitive rail system." In addition, we would emphasize our agreement that it appears that the intent of the study was to rationalize an electrification scheme and timetable, rather than to provide an impartial analysis of the problem and investigate all alternatives for reducing air pollution and base this analysis on a factual assessment.

62 Finally, Union Pacific would like to emphasize our view that while the report was a best faith attempt to estimate the cost and benefits of electrification of rail in the region, it remains incomplete and understates the negative impact such a program would have on freight rail operations.

Union Pacific will continue to participate in and cooperate with the Task Force as needed for producing any additional information that may be deemed necessary.

Very Sincerely,

Bill Wimmer
AVP - Engineering Services

13 – SOUTHERN CALIFORNIA GAS COMPANY

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
 DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
 SOUTHERN CALIFORNIA GAS COMPANY**

Comment/Ref. No.	Disposition	Comments
1	B	
2	E	
3	B	
4	A	

Disposition Code:

- A.** Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B.** Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C.** Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D.** Partially Agree with Comment. Explanation Provided as Appropriate.
- E.** Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

The Gas Company

B. Jack Smith

Natural Gas Vehicle Marketing Manager
Marketing



March 13, 1992

Ms. Sharon Greene
Regional Coordinator
Los Angeles County Transportation Commission
818 W. 7th Street
Los Angeles, CA 90017

Sharon, thanks for the opportunity to comment on draft volumes I and II of the Southern California Accelerated Rail Electrification Program. As chairman of the Alternative Fuels Committee, here are the general committee comments. You may also be receiving specific individual comments from committee members directly.

I, along with the entire Alternative Fuels Committee would like to commend you and other members of the SCRRA staff for recognizing the important contributions alternative fuels can make to cost effectively achieve the regions air quality goals related to rail operations. The Gas Company is looking forward to working with the SCRRA in developing and implementing the use of natural gas locomotives.

Sincerely,

Attachment

BJS/sll

cc: Alternative Fuels Committee
Norm Jester, LACTC

**Southern California
Gas Company**

555 W. Fifth Street
Los Angeles, CA
90013-1011

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tel 213 244-3789
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Report Comments

Sec. 3.2, pg 3-3

Transportation Cost Effectiveness

- 1 Needs to provide a discussion of which costs are, and are not included, i.e., cost of locomotives, utility relocation, consolidated corridor, etc.

3.3.2.1, pg 3-17 and 11.1, pg 11-1

Emissions Reductions

- 2 The cumulative air quality benefits over time needs to be included as part of the discussion. Use of alternative fuels, including clean diesel, are technologies that can provide almost immediate benefits compared to long range plans for electrification.

8.2.5 pg 8-11 pg 8-11 and 8.3.15 and 8.3.16 pg 8-16

Funding

- 3 The funding discussions on alternative fuels should be deleted from the report. The Alternative Fuels Committee felt that identifying funding mechanisms at this time is premature and should be included under "Next Steps"

8.4.6 pgs 8-19 and 8-20

Evaluation

- 4 Exhibit 8.1 should be deleted from the report. The graph is not supported by data contained in the report, i.e., the estimated costs per ton reduced for CNG and electric.

Southern California Regional Electrification Program

DATE March 13, 1992

SHEET 1 OF 1

REVIEW COMMENTS

REVIEWER B. Jack Smith, Chairman ORGANIZATION & DIVISION Alternative Fuel Committee

SUBMITTAL 1st Alternative Fuels Chapter NAME AND DATE OF ISSUE Final Draft: February 10, 1992

Was not available for comment in earlier issues of the report (drafts)

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
3.2	3-3	3.2	Transportation Cost Effectiveness - See Attached	
3.3.2.1	3-17	3.3.2.1	Emission Reduction	
11.1	11-1	11.1	Air Quality	See Attached
8.2.5	8-11	8.2.5	Funding	
8.3.15	8-16	8.3.15	Funding Opportunities	See Attached
8.3.16	8-17	8.3.16	Potential for Rate Treatment	
8.4.6	8-19	8.3.16	Evaluation/Summary	
	8-20	Exhibit 8.1	Comparison of Costs	See Attached

FILE IN 1032 COLLECTION DIV. 6 INT. RESEARCH

P. 4

14 – CALIFORNIA AIR RESOURCES BOARD

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
CALIFORNIA AIR RESOURCES BOARD**

Comment/Ref. No.	Disposition	Comments
1	A	
2	A	
3	C	Infeasible
4	A	Restated at 2.8% using AQMD 1987 data
5	C	Exhibit has been modified
6	A	Language has been modified
7	A	
8	A	
9	A	
10	A	
11	A	Answer: Duplicated
12	A	
12 (2nd)	C	
13	A	
14	A	
15	A	
16	A	
17	A	
18	A	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

Southern California Regional Electrification Program

DATE 3/10/92
SHEET 1 OF 3

REVIEW COMMENTS

REVIEWER Marijke Bekken ORGANIZATION & DIVISION Air Resources Board, Mobile Source Division
SUBMITTAL _____ NAME AND DATE OF ISSUE Feb. 10, 1992 Draft Version 1

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
1	ES-1	Para 2, line 6	insert "Atchison" (Atchison Topeka & Santa Fe)	
2	ES-1	Para 4, line 6	I question the use of the phrase "overwhelming majority." Is it justified?	
3	ES-4, 5	Exhibit ES-3	The purpose of this chart would be better met if the column widths were narrowed so the table would fit on one (extended) page.	
4	ES-6	Air Qual, para 1	The 1991 BAH/LEAC report, acknowledged by the rails as good inventory, puts the rail contribution in the SCAB at 2.9% of the total NOx inventory, rather than the 2.6% estimated by SCAG. It should be changed.	
5	ES-7	Exhibit ES-4	Further, Exhibit ES-4 is worthless and says nothing that the supporting text does not.	
6	ES-6	Air Qual, para 1	Mainline freight is already (1987) estimated at 2/3 of the rail emissions. The phrasing makes it sound like this component is currently much lower but will increase. Actually, all that is happening is a reduction in switcher activity.	

Southern California Regional Electrification Program

DATE 3/10/92

SHEET 2 OF 3

REVIEW COMMENTS

REVIEWER Marijke Bekken ORGANIZATION & DIVISION Air Resources Board, Mobile Source Division
 SUBMITTAL _____ NAME AND DATE OF ISSUE Feb. 10, 1992 Draft Version 1

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
7	ES-6	Air Qual, para 2	Are you sure that AQMD assumed 70% auto fleet electric? I though the 1991 AOMP estimates 17%. Further, it states on p 14 of the 2/3/92 draft Air Impact Anal. that a change to lower emitting locos was assumed. I do not believe this is consistent with the statement about "no improvement in ... technology."	
8	ES-6	Legal, para 3	What is Transportation Control Measure 3G? We know what an RTIP is, but do our readers? Perhaps a footnote.	
9	ES-6	Measure 14	Again, for the benefit of the less informed, change to AOMP Measure 14.	
10	ES-6	Alt Fuels	Delete the hyphen between rail and operations.	
11	ES-10	Exhibit ES-7	Are these for duplicated or nonduplicated trackage?	
12	ES-11	Table ES-1	I think a brief footnote of why the mileage total is greater than that of the sum of the routes would be in order for the noninvolved.	

Southern California Regional Electrification Program

DATE 3/10/92

SHEET 3 OF 3

REVIEW COMMENTS

REVIEWER Marijke Bekken ORGANIZATION & DIVISION Air Resources Board, Mobile Source Division

SUBMITTAL _____ NAME AND DATE OF ISSUE Feb. 10, 1992 Draft Version 1

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
12	ES-13	(Routes)	The route names here are different in some instances than those used in Exhibit ES-7. Make consistent.	
13	ES-13	Para 2, line 2	"to advance to" (grammar)	
14	ES-13	Est Cost, para 2	"Atchison" Topeka and Santa Fe	
15	ES-17	Para 1, line 10	Appendix ES-1 (Add "S")	
16	ES-17	Table ES-6	Make a note of the difference between track and route miles.	
17		Disclaimer	Move to the front of the report. What page of participants? I don't have one. I have a list of funding contributors only.	
18	General	General	There are some editorial-type things not mentioned here. These include some inconsistencies in punctuation within lists, identification of all acronyms (e.g., on pg ES-1), extraneous and/or misplaced commas and the like. A careful reading by your staff should readily identify these for correction.	

15 – CITY OF ANAHEIM – PUBLIC UTILITIES DEPARTMENT

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
 DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
 CITY OF ANAHEIM, PUBLIC UTILITIES DEPARTMENT**

Comment/Ref. No.	Disposition	Comments
1	B	
2	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

Southern California Regional Electrification Program

DATE 3/09/92

SHEET 1 OF 1

REVIEW COMMENTS

REVIEWER David X. Koik ORGANIZATION & DIVISION City of Anaheim, Public Utilities Dept.

SUBMITTAL _____ NAME AND DATE OF ISSUE _____

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
1	12-4	12.2.1.2.2	Anaheim is a member of SCPPA.	
2	12-5	12.2.1.2.3	Shares are voted based upon ownership/entitlement rights in each project. For SCPPA Board Action, each member utility has 1 vote.	

16 – ORANGE COUNTY TRANSPORTATION AUTHORITY

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
FLUOR DANIEL**

Comment/Ref. No.	Disposition	Comments
1	B	
2	B	
3	B	
4	B	
5	B	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

Southern California Regional Electrification Program

DATE 3/13/92

SHEET 1 OF 1

REVIEW COMMENTS

REVIEWER A. Witzig ORGANIZATION & DIVISION Fluor Daniel/OCTA - Alt. Fuels Cmte.

SUBMITTAL _____ NAME AND DATE OF ISSUE Vol. II, Chapter 8, Alt. Fuels

REF. NO.	PAGE NO.	DOC. SECTION NUMBER	COMMENTS BY REVIEWER	RESPONSE/ACTION
1		Whole Chptr.	Greater clarity would be achieved by seeing comparable data side by side in a matrix table: Baseline <u>LNG</u> <u>Meth/Avocet</u> <u>Clean Diesel</u> <u>Diesel</u> - Characteristics - Costs - AQ Results	
2		Table 8-18	Should have absolute values columns, not only % changes.	
3		Exhibit 8-1	Needs calibration w/other tables; lacks backup tables; probably should be removed but if used, needs columns for baseline diesel and clean diesel.	
4	8-4	3rd ¶, line 2	at a = that a	
5	8-9	5th ¶, line 11	Cost of abut = cost of about.	

17 – SOUTHERN PACIFIC TRANSPORTATION COMPANY

**SOUTHERN CALIFORNIA ACCELERATED RAIL ELECTRIFICATION PROGRAM
DRAFT FINAL REPORT REVIEW COMMENTS DISPOSITION SUMMARY FOR
SOUTHERN PACIFIC TRANSPORTATION COMPANY**

Comment/Ref. No.	Disposition	Comments
1	A	
2	A	SCAG has found Metrolink plans to be in conformity with AQMP.
3	A	Measure 14 will be re-evaluated by SCAG, AQMD and other appropriate agencies
4	E	Agree
5	E	Agree
6	B	
7	E	\$40 million budgeted for locomotive maintenance facilities.
8	E	Agree
9	E	
10	E	
11	E	
12	E	

Disposition Code:

- A. Agree with Comment. Comment Incorporated in Final Executive Summary as Applicable.
- B. Agree with Comment. Comment Not Incorporated in Final Executive Summary as Comment Only Applies to Volumes 1 or 2.
- C. Disagree with Comment; Not Incorporated in Final Executive Summary: Explanation Provided as Appropriate.
- D. Partially Agree with Comment. Explanation Provided as Appropriate.
- E. Comment to be Addressed in Subsequent Phases of Project Following Further Analysis.

Southern Pacific Transportation Company

Southern Pacific Building • One Market Plaza • San Francisco, California 94105

March 16, 1992

Bruce Nestande
Chairman, Rail Electrification Task Force
Southern California Regional Rail Authority
818 West 7th Street, Suite 1100
Los Angeles, CA 90017

Dear Mr. Nestande:

Re: Southern Pacific's Comments on SCRRA Electrification Study

Southern Pacific is pleased to have an opportunity to comment on the recently released draft of the SCRRA's Rail Electrification Study. This study represents an ambitious undertaking, and you and your staff are to be complimented on the timely efforts to meet the project's objectives. Royce Green, Southern Pacific's Director of Special Projects and our lead official for the electrification study, is unequivocal that, given the constraints of time and funds, the people responsible for pulling the study together did an admirable job.

We have several major concerns with the study which we share with you and others in an attempt to ensure that future activities to amplify and complete the Task Force's written materials are as fruitful and productive as possible. In short, we believe that the question of how to evaluate electrification, and specifically freight railroad electrification, must be considered in the larger context of California's overall transportation system, in a larger context than just the South Coast Air Basin, and within the *appropriate* regulatory framework.

Need for a Transportation System's Approach to Emissions Reductions

1 In retrospect, perhaps the largest failure in the study design was to fail to include a comparative assessment of emissions from the basin's overall transportation system and the options to reduce them. Such an assessment was clearly warranted once the concept of the study was expanded to include an initial look at the opportunities for emissions reductions from the electrification of the freight railroads.

Had such an assessment been included, we believe it would have demonstrated that the most cost-effective opportunity to reduce emissions is to promote a transportation system that directs container traffic off interstate trucks and off the Los Angeles region's freeways and onto an efficient, competitive rail system. By building upon the freight railroads' acknowledged lead in fuel economy and efficiency per ton of

freight delivered, the region, the taxpayer, and the ratepayer will be getting the biggest emissions reduction per dollar invested.

In fact, at a joint meeting of the SCAQMD Transportation Committee and the Interagency AQMP Implementation Committee on February 24th, Supervisor Norton Younglove stated that it was his opinion that the AQMD Board will not support an alternative which will put more trucks on the road, resulting in more air quality problems. We share Supervisor Younglove's concern. And we are afraid that a rush into electrification based on this initial study which fails to account for the overall costs and which fails to assess the alternatives could do just that. More trucks. More traffic. More accidents. Far greater emissions increases than will be offset by reductions in locomotive emissions.

Any further work by the committee should include a thorough and thoughtful analysis of this issue. We must be careful not to disadvantage the only environmentally benign freight mode alternative to trucks.

Background - How the Scope of the SCRRA Study Came About

This rail electrification study grew out of concerns raised initially by a study funded by Southern California Edison that assessed the relative trade-offs of running the Metrolink service with existing diesel locomotive technology. This analysis, accepted with little peer review or scrutiny, eventually led the SCAQMD Governing Board to propose a resolution questioning the use of diesel locomotives on these commuter lines. Subsequently, the joint boards of the SCAQMD and the California Transportation Commission (CTC) called on the SCRRA to expeditiously study the electrification of this commuter service.

Obviously, to those knowledgeable about the nature of railroad NO_x emissions, any look into electrification of the commuter service would have to deal with the question of the freight railroads since (a) they share rights-of-way and (b) emissions are broadly correlated to units of work performed, and operation of the freight system involves many times the units of work to be performed compared to passenger locomotives; hence the freight system will continue to be the larger source of emissions even as technology continues to improve.

Hence, the electrification report which is now before us, which includes a broad assessment of freight rail electrification issues, grew out of a much narrower initial mandate by the CTC and the SCAQMD boards to look into the issues surrounding the electrification of a passenger rail service in the South Coast Air Basin.

Report Conclusions

We believe this background is important to understand our objections to the study's conclusions, its proposed "next steps", and how far we believe the authors of the report may have stretched their bounds of inquiry.

On Page ES-24 of the Executive Summary the following policy conclusions are reached:

Report: *"SCRRRA should proceed with implementation of the Metrolink System under diesel operation initially, taking further steps to reduce the emissions from the diesel locomotives...."*

2 SP Comment: While SP agrees that diesel-based operations ought to be implemented, is this conclusion based on the level of cost involved in electrification, the lack of funding, the emission reduction potentials, the cost-effectiveness of the system, the regulatory hurdles, the implications for other transportation programs throughout the state or some other issues? What criteria were used to reach this decision?

Report: *"Based on the results of this report, 1991 AQMP Measure 14 which requires 90% emissions reduction from rail operations through electrification by 2010, should be re-evaluated with respect to the following:*

- *NOx Emission Reduction Target*
- *Proposed Technology to Achieve Required Emissions Reductions*
- *Phasing of Required Emissions Reductions"*

3 SP Comment: We agree with the study's conclusion that the level of reduction and timing of Measure 14 will have to be re-examined. However, the tone of the recommendation makes it sound as if this conclusion has been reached by the appropriate regulatory agency rather than a group of consultants, interested parties, and staff members of governmental bodies who have no regulatory oversight.

At this time, the U.S. EPA and the California Air Resources Board (CARB) are in formal rulemaking proceedings on locomotive emissions. Furthermore, the SCAQMD continues to remain concerned about locomotive emissions from both the vantage point of visible emissions as well as from its mandate to implement its Measure 14 of the 1991 AQMP. Despite the fact that there is tremendous uncertainty over the respective reaches and roles of these three agencies in emissions rulemaking on locomotives, Southern Pacific, nonetheless, believes they, and not SCRRRA, are the proper agencies to evaluate freight locomotive emission issues.

