



November 12, 2019

Air Pollution Control Board  
800 South Victoria Avenue  
Ventura, CA 93009

**SUBJECT: AMEND POLICY REGARDING “BACT COST EFFECTIVENESS PROCEDURES AND SCREENING LEVELS FOR COSTS” TO UPDATE THE COST SCREENING LEVELS FOR ROC AND NO<sub>x</sub>, AND TO FIND THAT ADOPTION OF THE PROPOSED VALUES ARE EXEMPT FROM CEQA**

**RECOMMENDED ACTIONS:**

1. Amend the Ventura County Air Pollution Control District’s (VCAPCD’s) policy regarding “BACT Cost Effectiveness Procedures and Screening Levels for Costs” (Attachment 1) to update the cost screening levels for Reactive Organic Compounds (ROC) and Oxides of Nitrogen (NO<sub>x</sub>) to be used for best available control technology (BACT) and best available retrofit control technology (BARCT) determinations.
2. Find that the approval of the proposed changes are exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines sections 15061(b)(3), 15307 and 15308.

**STATEMENT OF MATTER FOR BOARD CONSIDERATION:**

**Background**

VCAPCD has authority to reduce criteria pollutant emissions through permitting stationary sources of pollution, including: NO<sub>x</sub>, ROC, Sulphur Oxides (SO<sub>x</sub>), Carbon Monoxide (CO) and Particulate Matter (PM) to meet both State and National Ambient Air Quality Standards. Any new equipment emitting any of the above pollutants is required to obtain permits from VCAPCD per New Source Review (NSR) guidelines found in Rule 26 which require installation of BACT. Additionally, the District writes new rules and amends existing rules which may require equipment owners and operators to retrofit their equipment or practices using BARCT. Additionally, cost-effectiveness analysis or economic impact must be conducted when determining BARCT and/or BACT with the exception that this analysis is only required for BACT when emissions controls are more stringent than what has been achieved in practice.

When cost-effectiveness is considered, cost requirements are viewed in relation to the estimated emissions reduced. The District has adopted a threshold for each criteria pollutant which

outlines what is considered to be cost-effective. The current cost-effectiveness threshold was adopted in 1988 and since then the threshold has been used for both BACT and BARCT determinations. Actions which reduce emissions are expressed in dollars per ton of a specific pollutant reduced per year, and if this estimated cost is less than the adopted threshold, it is considered cost-effective.

Ventura County is designated nonattainment for state and as a “serious” nonattainment area for federal 8-hour ozone standards. Ozone is a secondary pollutant formed by the reaction of ROC and NO<sub>x</sub> in the presence of sunlight. Ventura County Air Pollution Control District’s strategy to reduce NO<sub>x</sub> and ROC emissions includes requiring BACT for all new sources and BARCT for existing sources.

VCAPCD’s Rule 26, New Source Review (NSR) requires that new and modified sources of air pollutants install BACT which is defined as “The most stringent emission limitation or control technology for an emissions unit that has been achieved in practice”. This definition does not consider cost and the majority of BACT determinations in the NSR process are made using this definition. For any control technology that is more stringent than what has been achieved in practice, VCAPCD allows for the consideration of economic impact. The method used by the District staff to consider the economic impact of requiring a particular control technology is to calculate the cost effectiveness of the control technology in terms of dollars per ton of pollutant reduced.

To date, new rules and the revisions of existing rules have used the same threshold when determining what is technologically and economically feasible to reduce NO<sub>x</sub> and ROC emissions. Due to inflation, the threshold which was adopted in 1988 (see Attachment 1) is allowing fewer rule actions to reduce emissions and reducing the District’s ability to further decrease emissions from stationary sources.

### Proposal

Staff is proposing to amend the policy regarding cost-effectiveness screening levels to update the levels for ROC and NO<sub>x</sub> to be used for BACT and BARCT determinations. The proposed amendments will increase the BACT cost-effectiveness thresholds for ROC and NO<sub>x</sub> and adopt a separate BARCT cost-effectiveness threshold for NO<sub>x</sub> to be used in rule and development as summarized in Table 1 below. The proposed increase in the BACT thresholds for NO<sub>x</sub> and ROC are consistent with neighboring districts as shown in Table 2 below, whereas the proposed increase in BARCT threshold for NO<sub>x</sub> is consistent with the US Bureau of Labor Statistics Consumer Price Index (CPI) increase from 1988 to 2019. Staff has used CPI increase in updating the cost effectiveness threshold for BARCT, as this threshold is mostly used for BARCT determination of existing sources, as opposed to BACT which is only applicable to new sources and not likely require conducting cost-effectiveness analysis. Ventura County is a NO<sub>x</sub> limited ozone nonattainment area, and reductions in NO<sub>x</sub> emissions are more effective at reducing ground level ozone production.

Table 1. Comparison of VCAPCD Screening Levels

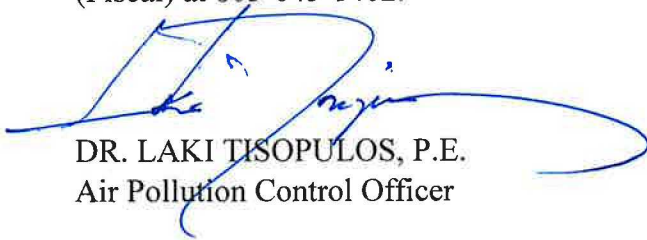
	Current BACT/BARCT	Proposed BACT	Proposed BARCT
	\$/ton	\$/ton	\$/ton
ROC	\$ 18,000	\$ 30,000	\$ 30,000
NOx	\$ 18,000	\$ 30,000	\$ 39,000

Table 2. Neighboring District BACT/BARCT Thresholds

	SCAQMD (BACT)	SCAQMD (BARCT)	SBCAPCD (BACT)	SBCAPCD (BARCT)
	\$/ton	\$/ton	\$/ton	\$/ton
ROC	\$ 30,947	\$ 30,000	\$ 32,012	\$ 32,012
NOx	\$ 29,262	\$ 50,000	\$ 32,012	\$ 32,012

The proposed changes will have a no significant effect on the environment. The action is therefore exempt from CEQA pursuant to CEQA Guidelines section 15061(b)(3). To the extent the proposed changes would affect the environment, the effects would be beneficial because the new threshold values expand the District's ability to decrease emissions from stationary sources. Consequently, the changes are also categorically exempt pursuant to CEQA Guidelines sections 15307 and 15308.

This letter has been reviewed by both County Counsel and the Auditor-Controller's Office. If you have any questions, please contact Danny McQuillan at 805-645-1432 or Nancy Mendoza (Fiscal) at 805-645-1402.



DR. LAKI TISOPULOS, P.E.  
Air Pollution Control Officer

Attachment 1 – VCAPCD Policy re: BACT Cost Effectiveness Procedures and Screening Levels for Costs

RESOURCE MANAGEMENT AGENCY  
**county of ventura**

Air Pollution  
Control District

Richard H. Baldwin  
Air Pollution Control Officer

December 20, 1988 (Agenda)

Air Pollution Control Board  
Ventura County Air Pollution Control District  
800 South Victoria Avenue  
Ventura, CA 93009

SUBJECT: BACT COST EFFECTIVENESS PROCEDURES AND SCREENING LEVELS  
FOR COSTS

RECOMMENDED ACTION:

Adopt, as Board policy, the proposed cost screening levels for use in determining whether a particular air pollution control technology is cost effective.

STATEMENT OF MATTER FOR BOARD CONSIDERATION:

Background

One of the key components of the APCD New Source Review and Prevention of Significant Deterioration Rule (Rule 26) is the requirement that new and modified sources of air pollutants install the Best Available Control Technology (BACT). Two different definitions of BACT are used in Rule 26. Both definitions allow economic factors to be considered in determining BACT under appropriate circumstances. For major sources of reactive organic compounds, nitrogen oxides or particulate matter, economic considerations are only appropriate for a control technology that has never been required or used for the particular source type under consideration. For other sources, economic considerations are always appropriate in determining BACT.

The method used by the District staff to consider the economic impact of requiring a particular control technology is to calculate the cost effectiveness of the control technology in terms of dollars per pound (or dollars per ton) of pollutant reduced.

Discussion

In the past, the District staff have used a very simple procedure for calculating the cost effectiveness of a control technology. Recently, the staff began using a more detailed procedure which is similar to the procedure being used by the California Air Resources Board and the South Coast Air Quality Management District. A copy of the procedure is attached for your information (Attachment 1).

Once the District staff and an applicant agree on a calculated cost effectiveness, a determination is made by District staff concerning whether the proposed BACT is cost effective. Currently, the staff is using screening levels for costs developed by the South Coast Air Quality Management District in May, 1983 which have been adjusted for inflation using the Consumer Price Index for All Urban Consumers in the United States. These cost screening levels are listed in the first column in the table below.

Comparison of Screening Levels for Costs of BACT

	Current VCAPCD \$/lb ( \$/ton)	New SCAQMD \$/lb ( \$/ton)	Proposed VCAPCD \$/lb ( \$/ton)
ROC	2.68 ( 5,539)	8.75 (17,500)	9.00 (18,000)
NOx	5.20 (10,397)	12.25 (24,500)	9.00 (18,000)
PM	3.05 ( 6,110)	2.65 ( 5,300)	5.00 (10,000)
SOx	2.09 ( 4,180)	9.15 (18,300)	5.00 (10,000)
CO	- ( - )	- ( - )	0.50 ( 1,000)

The South Coast Air Quality Management District recently revised its cost screening levels based on the most expensive control strategies adopted by the SCAQMD Board. The new SCAQMD cost screening levels are listed in the second column in the table above.

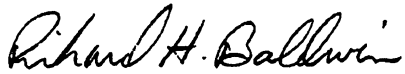
The District staff is proposing to increase its cost screening levels. The proposed Ventura County APCD cost screening levels are listed in the third column of the table above. The proposed cost screening levels are only roughly based on the new SCAQMD cost screening levels.

The Ventura County Air Quality Management Plan is based on equal reductions in reactive organic compounds (ROC) and nitrogen oxides (NOx). Therefore, the District staff believe the cost screening levels for ROC and NOx should be equal. Particulate matter (PM) and sulfur oxide (SOx) emissions both contribute to the inhalable particulate matter (PM10) problem in the County. Therefore, the District staff believes the cost screening levels for these two pollutants should also be equal. Since the PM10 problem is not as severe in Ventura County as the ozone problem, the staff believes that the cost screening level should be less for PM and SOx than for ROC and NOx. Finally, Ventura County does not have a severe CO problem and the staff, therefore, believes that the cost screening level for CO should be minimal.

Adoption of the proposed policy was recommended by the Air Pollution Control District Advisory Committee on November 22, 1988. (See Attachment 2 for voting record.)

Air Pollution Control Board  
December 20, 1988  
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This proposal has been reviewed by the offices of the Chief Administrative Officer and County Counsel. If you have any questions, please contact Karl Krause at extension 2808.



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Richard H. Baldwin  
Air Pollution Control Officer

Attachments

kkbact

**ADVISORY COMMITTEE  
ATTENDANCE AND VOTING RECORD**

DATE November 22, 1988

BACT Procedure      Rule 74.7

MEMBER	ATTENDANCE P-PRESENT A-ABSENT E-EXCUSED	BACT Procedure			Rule 74.7											
		MOVED	SECOND	VOTE *	MOVED	SECOND	VOTE *	MOVED	SECOND	VOTE *	MOVED	SECOND	VOTE *	MOVED	SECOND	VOTE *
Guillen	P			Y			Y									
Harvey	AE															
Irigoyen	A															
Kuhn	P	X		Y			Y									
Lea	P			Y			Y									
McCarthy	P			Y			Y									
Johnson	P			Y			Y									
Moore	P		X	Y	X		Y									
Oldenkamp	P			Y			Y									
Pegg	P			Y			Y									
Pound	A															
Reed	P			Y		X	Y									
Schar	P			Y			Y									
Wilson	A															
Zubia	AE															

\*INDICATE "Y" FOR YES, "N" FOR NO, OR "A" FOR ABSTAIN

NOTES:

County of Ventura  
Resource Management Agency / APCD

Memorandum

To: Interested Parties Date: May 27, 1988  
From: Donald R. Price  
Subject: Cost Effectiveness Calculations for Control Equipment

The following is the method for calculating cost effectiveness (CE) in dollars per pound for a single emission control strategy.

- A. Obtain "A'" from Page Three of this form. \_\_\_\_\_
- B. Calculate the expected emissions reduction (R), in pounds per year, by subtracting the expected emission rate from the uncontrolled emission rate.

Uncontrolled emission rate = \_\_\_\_\_  
Expected emission rate --- = \_\_\_\_\_  
Emission reduction (R) ----- = \_\_\_\_\_

- C.  $CE = \frac{\text{Annual Cost in Dollars per year (A')}}{\text{Emission reduction in Lb per yr (R)}} = \underline{\hspace{2cm}}$

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Notes:

- 1) PEC = Purchased Equipment Cost, shown in Line 6.  
TCI = Total Capitol Investment, shown in Line 30.

To estimate many of the Capitol Investment items, multiply either the PEC or the TCI by a factor in the given range.

- 2) (Parenthetical) notes are suggested estimating ranges.  
[Bracketed] notes are definitions.

- 3) Capitol Recovery Factor (CRF):

$$CRF = \frac{I}{(1 - ((1+I)**(-N)))}$$

where I = Interest Rate  
N = Economic Life of item



**TOTAL CAPITOL INVESTMENT**

			Dollars
1.	Primary Control Device -----		_____
2.	Auxiliary Equipment -----		_____
3.	Instrumentation -----((Lines 1+2)*.10)--		_____
4.	Sales Taxes -----[in CA (1+2)*.06]--		_____
5.	Freight -----((1+2)*.05)-----		_____
6.	<b>PURCHASED EQUIPMENT (PEC) [Add 1 thru 5] Subtotal</b>		_____
		PEC             TCI	
7.	Foundations and Supports (include with 8) --		_____
8.	Handling And Erection   (.25-.55)   (.06-.14)-		_____
9.	Electrical -----   (.10-.15)   (.03-.10)-		_____
10.	Piping -----   (.10-.80)   (.03-.20)-		_____
11.	Insulation -----   (.08-.09)   (.02) -		_____
12.	Painting -----   (.02-.05)   -		_____
13.	<b>DIRECT INSTALLATION [Add 7 thru 12] ---- Subtotal</b>		_____
14.	Site Preparation -----   (.10-.15)   (.02-.05)-		_____
15.	Buildings -----   (.05-.10)   (.02-.03)-		_____
16.	<b>DIRECT COST [Add 6+13+14+15] ----- TOTAL</b>		_____
17.	Engineering -----   (.30)        (.08) -		_____
18.	Construction/Field Expenses ((Line 16)*.10)-		_____
19.	Contractor Fee(Line 16)*(.02-.08)   (.02-.06)-		_____
20.	Start-up -----                  (.08-.10)-		_____
21.	Performance Test -----                  -		_____
22.	Lost Production (during tie-in)                  -		_____
23.	Contingencies -----                  (.05-.15)-		_____
24.	<b>INDIRECT COST [Add 17 thru 23] ----- TOTAL</b>		_____
25. "Battery Limits" Cost [Add 16+24] ----- TOTAL _____			
26.	Off-site Facilities --   (.30-.80)   (.08-.20)-		_____
27. Depreciable Investment [Add 25+26] ----- TOTAL _____			
28.	Land (Nondepreciable)   (.04-.08)   (.01-.02)-		_____
29.	Working Capitol (Nondepreciable)   (.15) -		_____
30. <b>CAPITOL INVESTMENT (TCI) [Add 27+28+29] - TOTAL (P) _____</b>			

**Notes:**

- 17. Engineering costs include construction design and engineering, drafting, purchasing, accounting, construction and cost engineering, travel, reproductions, communications and home-office overhead expense.
- 18. Construction and field expenses include temporary construction and operation, construction tools and rentals, home-office personnel at site, construction payroll, travel and living, taxes and insurance, and other field overhead.
- 19. The Contractor Fee is a flat percentage mark-up.

**TOTAL ANNUAL COST**

	Quantity	Dollars/Year
31. Raw Materials -----	_____	-- _____
32. Utilities		
> Electricity -----	_____	-- _____
> Fuel -----	_____	-- _____
> Water -----	_____	-- _____
> Water Treatment/Disposal-	_____	-- _____
> Other -----	_____	-- _____
33. <b>VARIABLE COSTS</b> [Add 31+32] -----	<b>TOTAL</b>	_____
34. Labor		
> Operating -----	_____	_____
> Supervisory ((Operating)*.15) -----	_____	_____
> Maintenance -----	_____	_____
35. Maintenance Materials -----	_____	_____
36. Replacement Parts [(Cost+Labor)*CRF] -----	_____	_____
37. <b>SEMI-VARIABLE COSTS</b> [Add 34+35+36] -----	<b>TOTAL</b>	_____
38. <b>DIRECT ANNUAL COSTS</b> [Add 33+37] -----	<b>TOTAL</b>	_____
39. Overhead [Payroll+Plant] ((Line 34)*.60) ---	_____	_____
40. Property Taxes ----- ((P)*.01) -----	_____	_____
41. Insurance ----- ((P)*.01) -----	_____	_____
42. Administration Charges - ((P)*.02) -----	_____	_____
43. Capitol Recovery ----- [CFR * P] -----	_____	_____
44. <b>INDIRECT ANNUAL COSTS</b> [Add 39 thru 43] -----	<b>TOTAL</b>	_____

**RECOVERY CREDITS**

45. Material -----	_____	-- (-) _____
46. Energy -----	_____	-- (-) _____
47. <b>ANNUAL COST</b> [Add 38+44+45+46] ----- <b>TOTAL (A')</b> _____		

**Notes:**

- 33. Variable costs are a direct function of exhaust flow rate and/or production rate.
- 34. Labor is for control system only.
- 35. Maintenance Materials is estimated to be 100% of the Maintenance Labor. Total maintenance (Labor, Materials and Replacement Parts) can be estimated at ((P)\*.06).
- 36. This capitol recovery factor (CRF) may be different from the one on Line 43 since the economic life of replacement parts is usually shorter than that of primary equipment.
- 37. Semi-variable costs are partially dependent on exhaust flowrate and/or production rate.
- 44. Indirect costs are independent of exhaust flowrate and production rate.
- 45,46. Material or energy sold, recycled or reused elsewhere.

CAPITAL RECOVERY FACTORS

YEARS (N)	INTEREST RATE				
	8.0%	9.0%	10.0%	12.0%	15.0%
1	1.0800	1.0900	1.1000	1.1200	1.1500
2	0.5608	0.5685	0.5762	0.5917	0.6151
3	0.3880	0.3951	0.4021	0.4163	0.4380
4	0.3019	0.3087	0.3155	0.3292	0.3503
5	0.2505	0.2571	0.2638	0.2774	0.2983
6	0.2163	0.2229	0.2296	0.2432	0.2642
7	0.1921	0.1987	0.2054	0.2191	0.2404
8	0.1740	0.1807	0.1874	0.2013	0.2229
9	0.1601	0.1668	0.1736	0.1877	0.2096
10	0.1490	0.1558	0.1627	0.1770	0.1993
11	0.1401	0.1469	0.1540	0.1684	0.1911
12	0.1327	0.1397	0.1468	0.1614	0.1845
13	0.1265	0.1336	0.1408	0.1557	0.1791
14	0.1213	0.1284	0.1357	0.1509	0.1747
15	0.1168	0.1241	0.1315	0.1468	0.1710
16	0.1130	0.1203	0.1278	0.1434	0.1679
17	0.1096	0.1170	0.1247	0.1405	0.1654
18	0.1067	0.1142	0.1219	0.1379	0.1632
19	0.1041	0.1117	0.1195	0.1358	0.1613
20	0.1019	0.1095	0.1175	0.1339	0.1598
21	0.0998	0.1076	0.1156	0.1322	0.1584
22	0.0980	0.1059	0.1140	0.1308	0.1573
23	0.0964	0.1044	0.1126	0.1296	0.1563
24	0.0950	0.1030	0.1113	0.1285	0.1554
25	0.0937	0.1018	0.1102	0.1275	0.1547
26	0.0925	0.1007	0.1092	0.1267	0.1541
27	0.0914	0.0997	0.1083	0.1259	0.1535
28	0.0905	0.0989	0.1075	0.1252	0.1531
29	0.0896	0.0981	0.1067	0.1247	0.1527
30	0.0888	0.0973	0.1061	0.1241	0.1523
31	0.0881	0.0967	0.1055	0.1237	0.1520
32	0.0875	0.0961	0.1050	0.1233	0.1517
33	0.0869	0.0956	0.1045	0.1229	0.1515
34	0.0863	0.0951	0.1041	0.1226	0.1513
35	0.0858	0.0946	0.1037	0.1223	0.1511
36	0.0853	0.0942	0.1033	0.1221	0.1510
37	0.0849	0.0939	0.1030	0.1218	0.1509
38	0.0845	0.0935	0.1027	0.1216	0.1507
39	0.0842	0.0932	0.1025	0.1215	0.1506
40	0.0839	0.0930	0.1023	0.1213	0.1506
41	0.0836	0.0927	0.1020	0.1212	0.1505
42	0.0833	0.0925	0.1019	0.1210	0.1504
43	0.0830	0.0923	0.1017	0.1209	0.1504
44	0.0828	0.0921	0.1015	0.1208	0.1503
45	0.0826	0.0919	0.1014	0.1207	0.1503
46	0.0824	0.0917	0.1013	0.1207	0.1502
47	0.0822	0.0916	0.1011	0.1206	0.1502
48	0.0820	0.0915	0.1010	0.1205	0.1502
49	0.0819	0.0913	0.1009	0.1205	0.1502
50	0.0817	0.0912	0.1009	0.1204	0.1501



**MINUTE ORDER**

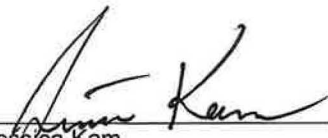
**VENTURA COUNTY AIR POLLUTION CONTROL BOARD**

**DAVID POLLOCK, COUNCIL MEMBER, CITY OF MOORPARK – CHAIR  
JOHN C. ZARAGOZA, SUPERVISOR, COUNTY OF VENTURA – VICE CHAIR  
STEVE BENNETT, SUPERVISOR, COUNTY OF VENTURA  
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LYNN EDMONDS, COUNCIL MEMBER, CITY OF FILLMORE  
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KELLY LONG, SUPERVISOR, COUNTY OF VENTURA  
LINDA PARKS, SUPERVISOR, COUNTY OF VENTURA  
CARMEN RAMIREZ, COUNCIL MEMBER, CITY OF OXNARD  
RICHARD ROLLINS, COUNCIL MEMBER, CITY OF PORT HUENEME**

**November 12, 2019 at 1:30 p.m.**

**Approval of and Adoption of Amendments to the Ventura County Air Pollution Control District's Policy Regarding the Best Available Control Technology (BACT) Cost Effectiveness Procedures and Screening Levels for Costs to Update the Cost Screening Levels for Reactive Organic Compounds (ROC) and Oxides of Nitrogen (NOx); and Find that the Approval of the Amendments are Exempt from the California Environmental Quality Act (CEQA).**

- (X) All Board Members are present, except for Board Members Bennett, Blatz and Huber.
- (X) The following person is heard: Ali Ghasemi.
- (X) Upon motion of Board Member Long, seconded by Board Member Zaragoza, and duly carried, the Board hereby approves staff recommendations as stated in the Board letter.

By:   
Jessica Kam  
Deputy Clerk of the Board