Proposed Amendments to the Carl Moyer Memorial Air Quality Standards Attainment Program 2017 Guidelines

This document contains only proposed changes to the existing Carl Moyer Memorial Air Quality Standards Attainment Program 2017 Guidelines. If a Section is excluded from this document then no changes are proposed. The proposed changes include ~~strikeout text~~ representing deleted text, underline text depicting new language, and plain text portraying no changes.

From the Carl Moyer Memorial Air Quality Standards Attainment Program 2017 Guidelines, Chapter 4: On-Road Heavy Duty Vehicles, page 4-6

CHAPTER 4: ON-ROAD HEAVY-DUTY VEHICLES

Table 4-4 State Funding Caps for Optional Low NOx Replacements

Optional Low Nox standard (g/bhp-hr)	HHD	MHD	LHD
0.02	$160,000 ~~$100,000~~	$120,000 ~~80~~,000	$70,000
0.05	$80,000	$60,000	$50,000
0.1	$70,000	$50,000	$40,000
Transit Buses			$25,000

No more than 80 percent of vehicle cost for fleets with 10 or less vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-6 State Funding Caps for Zero Emission Replacements or Conversions

Weight Class/Vocation Type	Funding Caps[(a)]
Transit Bus	$80,000
HHD Truck or Bus	$410,000 ~~200,000~~
MHD Truck or Bus	$180,000 ~~150,000~~
LHD Truck or Bus	$170,000 ~~80,000~~

[(a)] No more than 80 percent of vehicle cost for fleets with 10 or less vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

From the Carl Moyer Memorial Air Quality Standards Attainment Program 2017 Guidelines, Chapter 4: On-Road Heavy Duty Vehicles, page 4-18

2. Project Categories and Applicable Project Types

(A) School Buses

(5) Maximum State Funding Amounts: School bus projects have unique maximum grant amounts as summarized in Table 4-2, and also a unique cost-effectiveness limit of $300,000~~276,230~~/ton. This cost-effectiveness limit allows for funding amounts consistent with the Lower-Emission School Bus Program funding caps based on average school bus operating usage as determined by a limited number of previously-funded Moyer Program school bus projects. Individual vehicle usage that falls below the average may result in lower funding amounts.

From the Carl Moyer Memorial Air Quality Standards Attainment Program 2017 Guidelines, Appendix C: Cost-Effectiveness Calculation, pages C1 – C3

APPENDIX C: COST-EFFECTIVENESS CALCULATION METHODOLOGY

A. Introduction

Cost-effectiveness is the measure of dollars provided to a project for each ton of covered emissions reduced. Statute requires that the California Air Resources Board (CARB) update the cost-effectiveness limit and capital recovery factors (CRF) annually. In addition, changes in statute per SB 513 now allow CARB, in consultation with air quality management districts and air pollution control districts (air districts), to establish new cost-effectiveness limits that reflect the cost of regulations and technology.

To determine a project's cost-effectiveness, all Moyer Program funds, air district match funds, and local AB 923 funds must be included. Non-Moyer funds used to co-fund a Moyer eligible project do not need to be included in the cost-effectiveness calculation. Projects that include such funds must meet all Moyer requirements and the other funding source requirements.

Projects are subject to the cost-effectiveness limits in Table C-1, which shows the changes in the cost-effectiveness limit over time based on changes in the Consumer Price Index. Historically, one limit has been applied to all Moyer Program projects. Per SB 513, a second cost-effectiveness limit for school buses was added in 2016 as shown in the table.

Table C-1
Cost-Effectiveness Limit Criteria 1998-~~2016~~ 2017

Year	Annual CA CPI	Percentage change (inflation rate)	Annual Change	Revised C/E Limit
1998	163.7	NA	NA	$12,000
1999	168.5	2.93%	$352	$12,352
2000	174.8	3.74%	$462	$12,814
2001	181.7	3.95%	$506	$13,319
2002	186.1	2.42%	$323	$13,642
2003	190.4	2.31%	$315	$13,957
2004	195.4	2.63%	$367	$14,324
2005	202.6	3.68%	$528	$14,852
2006	210.5	3.90%	$579	$15,431
2007	217.4	3.28%	$506	$15,938
2008	224.8	3.40%	$541	$16,479
2009	224.1	-0.31%	($51)	$16,428
2010	227	1.29%	$212	$16,640
2011	233	2.66%	$443	$17,084
2012	238.3	2.25%	$385	$17,469
2013	241.8	1.46%	$255	$17,724
2014	246.1	1.77%	$313	$18,037
2015	249.1	1.25%	$225	$18,262
2016 Base	No C/E update pending 2017 guideline update	n/a	n/a	$18,262
2016 School Bus	New C/E Limit under SB 513	n/a	n/a	$276,230
2017 Base	New C/E Limit under SB 513	n/a	n/a	$30,000
2017 Optional Advanced Technology	New C/E Limit under SB 513	n/a	n/a	$100,000

Table C-2 shows the cost-effectiveness limits proposed ~~under the 2017~~for these Guidelines. As shown, ~~two~~ the following cost-effectiveness limits are ~~now~~ available: one to support conventional projects, one specific to school bus projects, and ~~a second~~ higher cost-effectiveness limits that air districts may choose to apply to the additional reductions provided by the cleanest engines, including those needed for long-term SIP commitments.

Base Limit: The base cost-effectiveness limit is ~~$30,000~~ $33,000 per weighted ton of emissions reductions. This level allows full funding for a wide range of ~~currently typical~~ conventional projects, such as diesel replacement projects ~~for early compliance with the Truck and Bus Regulation~~ where surplus to regulations. The level is consistent with the cost of compliance with regulations and will enable grants of sufficient size to encourage off-road engines to be replaced or repowered sooner to a Tier 4 standard.

Optional Advanced Technology Limits: For advanced technology projects that are zero-emission, or alternatively meet the cleanest optional standard level certified, air districts have the option to apply a cost-effectiveness limit of up to ~~$100,000~~ $109,000 per weighted ton for the emissions reductions beyond those achieved by the required standard. The higher cost-effectiveness limit is ~~not technology or vocation specific, but~~ available for optional advanced technologies. For on-road heavy-duty projects that meet the optional certified advanced technology standard, like the 0.02 g/bhp-hr ~~optional low-~~NOx standard engine or cleaner, air districts have the option to apply a higher cost-effectiveness of $200,000 per weighted ton for the emissions reductions beyond the required standard. For on-road heavy-duty projects that meet the optional certified zero-emission technology standard, air districts have the option to apply a higher cost-effectiveness of $500,000 per weighted ton for the emissions reductions beyond the required standard. To be eligible, the engine must be:

- Zero-emission or meet the cleanest optional emission standard where applicable ~~(0.02 g/bhp-hr in the case of on-road);~~
  - For on-road optional advanced technologies, a certified 0.02 g/bhp-hr NOx standard or cleaner;
  - For on-road zero-emission technologies, a certified zero-emission standard;
- Commercially available and offered for sale; and
- Certified or verified by CARB or the United States Environmental Protection Agency

The optional Advanced Technology's higher cost-effectiveness limits are ~~is~~ applied only to the incremental emission reductions beyond what the conventional project would achieve. An air district would apply the base cost-effectiveness limit for costs associated with getting engines to the cleanest required standard, and then could apply the appropriate advanced technology limit to the additional costs of getting emissions down to or below the cleanest optional standard.

Table C-2
Cost-Effectiveness Limit Criteria ~~2017~~ 2021

Year	Project	Proposed Change or Status	Revised C/E Limit
~~2017~~ 2021	Base Limit	New C/E Limit	~~$30,000~~ $33,000
~~2017~~ 2021	Optional Advanced Technology Limit	New C/E Limit for incremental reductions from specified advanced technologies	~~$100,000~~ $109,000
2021	On-road Optional Advanced Technology Limit	New C/E Limit for incremental reductions from on-road advanced technologies	$200,000
2021	On-road Zero-Emission Technology Limit	New C/E Limit for incremental reductions from on-road zero-emission technologies	$500,000
~~2017~~ 2021	School Bus	2016 C/E Limit retained in 2017 Guidelines	~~$276,230~~ $300,000

For projects in source categories without optional standards, only vehicles certified as zero-emission would be eligible for the higher cost-effectiveness limit. In these cases, the higher limit would apply to the incremental reductions below the most stringent standard for that category. General calculations for determining cost-effectiveness and other calculations needed to administer the Moyer Program are described in the following pages.