

Appendix B: Sales Trigger Analysis and Methodology

This appendix explains the analysis performed and the methodology used by the Air Resources Board (ARB) staff to select the proposed sales triggers that determine when an applicant to ARB's verification program must begin the in-use compliance process. Section A below explains the current sales triggers and why the sales triggers used by the U.S. EPA voluntary retrofit program are different than staff's proposal. Section B outlines the analysis used to develop staff's proposal and Section C lists references used.

A. Current Sales Triggers

The current regulation requires applicants to ARB's verification program to begin the in-use compliance process when they have sold or leased 50 units of a given diesel emission control strategy (DECS) family in the California market. In the original staff report for the verification program, staff stated that they based the 50 unit sales number on U.S. EPA's Voluntary Retrofit Program (ARB, 2002). To be consistent with U.S. EPA's sales trigger of 500 units nationwide, 50 units were originally selected since California possessed approximately 10 percent of the nation's population at that time.

During the public process industry requested that staff adopt the higher sales trigger currently used by U.S. EPA. The voluntary retrofit program administered by U.S. EPA currently requires in-use compliance testing after the sale of 500 units nationwide. Staff evaluated this request but determined that the vast differences in market sizes between the 2 programs makes adopting this larger sales trigger unreasonable. U.S. EPA's voluntary retrofit program is administered in all 50 states and ARB's in only 1, California. Simply aligning the sales thresholds of both verification programs does not address the vast difference in market sizes. While staff believes that the sales trigger could be increased, simply adopting U.S. EPA's trigger would result in some DECS families substantially delaying their in-use testing.

B. Sales Trigger Analysis and Methodology

During the public process, applicants stated that the current sales trigger of 50 units is too low to justify the testing costs associated with the in-use compliance requirements. In an effort to determine a reasonable increase in the sales triggers, staff reviewed the purpose of the required testing. In-use testing is necessary to validate the effectiveness of ARB verified strategies and to provide credible data that can be used to resolve any performance or durability issues. ARB's verification program requires 2 sets of in-use testing: one designed to be performed shortly after initial verification to identify and resolve any performance issues with an applicant's strategy before widespread application occurs, and the second after the strategies have been significantly aged to validate their effectiveness and continuing durability. This testing provides valuable

protections to the end-users of these devices by providing staff with the data necessary identify potential performance or durability issues.

Another important factor that was considered before proposing any increase to the existing sales trigger is the required product warranty. ARB's verification program requires applicants to provide end-users of these devices with a product warranty, and specifies minimum warranty periods for all DECS. Since the purpose of the in-use tests are to identify potential performance or durability issues it is imperative that this testing is performed before an applicant's initial "post-verification" sales have exceeded their minimum warranty periods. If a performance issue is identified during in-use compliance testing, providing a resolution for an end-user whose system is no longer under warranty would be difficult. Therefore, increasing the sales trigger to a level that results in the delivery of in-use test data to staff long after an applicant's initial sales have exceeded their minimum warranty period must be avoided.

However, performing in-use testing shortly after an applicant's initial verification testing should also be avoided as it is costly and may be largely unnecessary. In-use testing that begins too soon after initial verification merely replicates testing already done to support the verification effort and places an unnecessary burden on applicants. Therefore, to determine if an increase in the sales trigger is feasible, analyzing when applicants are meeting the existing 50 unit trigger is a necessary first step. If applicants are currently meeting the sales trigger relatively quickly after receiving either full or conditional verification, then the trigger could be increased to ensure that in-use compliance testing does not begin too soon after an applicant enters the marketplace. Also, this analysis must provide information that allows staff to balance any proposed increase so that it will not significantly delay an applicants in-use testing.

To accomplish this, staff reviewed both currently and formerly verified applicants' confidential annual warranty reports. These reports include annual sales data by DECS family name. Staff only used on-road and off-road sales data because sales data for other applications, such as stationary, were incomplete. Staff selected only those DECS family names that had total sales in excess of 75 units for on-road and 50 units for off-road. This was done to ensure that only DECS family names that had a significant market presence were used in the analysis. Staff then reviewed the data for the first 2 years of sales after receiving initial verification or conditional verification. The first full year of sales was defined to be at least 8 months to avoid skewing the data by selecting family names verified late in a calendar year. In addition, both currently and formerly verified systems were used in the analysis to increase the size of the data set. The analysis included sales data from calendar years 2003 through 2010 and is shown in Figure B1.

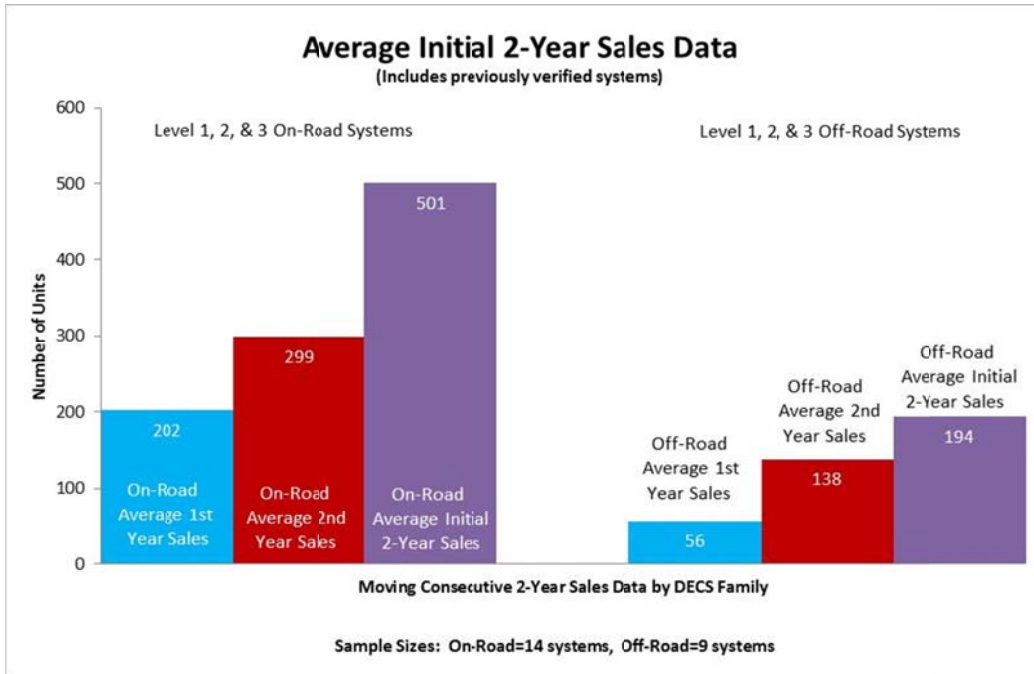


Figure B1. Average Initial 2 Year Sales Data from Currently and Previously ARB Verified On and Off Road DECS

Based on this analysis, it appears that applicants of on-road verified systems are reaching the 50 unit sales trigger shortly after receiving their initial verification and off-road verified systems within the first year. Therefore, ARB staff believes that the sales trigger for the first set of required in-use testing can be increased without sacrificing the protections built into the current requirements. Based on this analysis, ARB proposes increasing the sales trigger for the first set of in-use compliance testing to 100 units. Setting the sales trigger at 100 units ensures that ARB receives in-use data from the first set of tests before widespread in-field application of an applicant’s strategy without resulting in a significant delay.

This analysis also shows that the second sales trigger could also be increased, but not to the levels initially requested by industry. As previously stated, this second set of in-use testing must be completed such that data are available before the end of the minimum warranty period of an applicant’s initial sales. Since the majority of both on-road and off-road systems have a minimum warranty period of 5 years, to meet this requirement these data are currently required within this time frame. Since applicants have 18 months to submit their final in-use test report after reaching the sales trigger, this second set of in-use testing must take place approximately 2 to 3 years after receiving initial verification, thus ensuring that the required data are available to staff within this 5 year window.

As shown in Figure B1, on-road sales of DECS appear to meet the 500 unit trigger within 2 years which would fulfill the requirements to meet the 5 year window. However, off-road sales fall far short of this level. Also, as stated by industry, sales of DECS in all

categories are slowing due to the global recession and much of the data used in the analysis was pre-recession data. Increasing the sales trigger to 500 units as requested by industry would delay ARB's access to in-use testing data well past the useful life of an applicant's initial sales.

Based on this analysis, ARB proposes increasing the sales trigger for the second set of in-use compliance testing to 300 units. This significant increase in the sales trigger will allow additional sales for all applicants before starting the required testing but will ensure that all categories can provide staff with the necessary in-use data before their initial sales exceed the minimum warranty period. These new triggers will provide applicants with additional time and added unit sales to help defer the costs of the mandatory testing.

C. References

ARB, 2002. California Air Resources Board. *Staff Report: Initial Statement of Reasons – Proposed Regulation for the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines*. California Air Resources Board, March 2002. <http://www.arb.ca.gov/regact/dieselrv/isor.PDF>. Last accessed December 6, 2011.