

Memorandum

Date: Wednesday, May 14, 2003

To: Aaron Lowe

From: Dan Kaplan

Re: Update of Calculations from Thomas Penway Research Project

I have updated the calculations from the Thomas Penway Research Group's analysis of the impact that extending emissions warranties would have on the independent automotive aftermarket in California.

This update of their calculations was done for two reasons. First, the recently released CARB study makes a number of assumptions that differ from those made in the Thomas Penway study. This update of the calculations attempts to narrow the differences between the two approaches by incorporating many of the assumptions that were made in the CARB study. Second, more current and detailed data on the aftermarket in California has become available since the Thomas Penway study was finished.

The following updates were made to the calculations from the Thomas Penway study:

- The time series of the calculations was extended to 2020, so that a comparison could be made with the CARB study of the overall net effect during the period from 2003 to 2020 (as is done in the CARB study).
- Replacement rates were taken from data from Industrial Marketing Research (IMR). The IMR data was used for five reasons: 1) this organization is a well-known and respected supplier of vehicle replacement rate data, 2) the data is current as of the end of 2002, 3) the data deals specifically with California, 4) the survey from which the data was taken has a sample size of over 20,000 California vehicle maintainers per year, and 5) average replacement rates for the period from 2000-2002 could be determined with the IMR data (this helps eliminate the potential impact of any single-year anomalies in the data).
- Unlike in the initial Thomas Penway calculations, this update assumes that vehicles under the age of three years old have no repairs or maintenance performed (except oil changes).
- The assumptions on vehicle sales and overall registrations of PZEVs were updated to match the assumptions in the CARB study.

The updated calculations determine that extending emissions warranties will cause a cumulative shift of **\$8.0 billion** in revenue from the independent aftermarket to vehicle dealers between the years 2003 and 2020.