NLEV Nationwide Benefits

Emissions

- National LEV cars much cleaner than today's new (Tier 1) vehicles (based on NMOG standards)

  -TLEVs 50% cleaner than Tier 1
  -LEVs 70% cleaner
  -ULEVs 84% cleaner

  - For model years after 2000, annual emissions benefits from National LEV approximate the removal of almost 10.5 million Tier 1 vehicles from the road.

- NLEV and Base Case (OTC LEV) comparison - for years 2005, 2007, 2015 - tons per day - emissions (ozone season weekday) totals for NMOG, NO_x - nationwide (estimate based on MY 97 start date in Northeast, MY 2001 start date nationwide):

NO_x emissions reductions in year 2005	- 400 tons/day
NO_x emissions reductions in year 2007	- 600 tons/day
NO_x emissions reductions in year 2015	- 1249 tons/day

NMOG emissions reductions in year 2005	- 279 tons/day
NMOG emissions reductions in year 2007	- 399 tons/day
NMOG emissions reductions in year 2015	- 778 tons/day

- NLEV and Base Case comparison - for year 2005 - tons per day - toxic emissions for benzene, 1,3-butadiene, formaldehyde, acetaldehyde:

	Benzene	**1,3-Butadiene**	**Formaldehyde**	**Acetaldehyde**
Reduction	7	1.1	4	1.2

- For year 2005 - tons per day - Particulate Matter (NMOG plus NO_x) benefit associated with NLEV as compared to Base Case:

  28.6 ton/day effective PM-10 emissions reduction (mostly NO_x)

Cost

- Incremental estimated cost per car for LEVs in CA - $96
  (CARB has modified their estimates slightly upward and EPA will address this change in the SNPRM).

- Incremental estimated cost per car for nationally available LEVs - $76

  -equal to less than 0.5% of new car price
  -less than ½ cost of pinstriping; about the price of a basic hubcap

  -EPA expects cost to be even less than $76 due to the following factors:

    -automotive pollution control technology continues to advance, leading to improved designs at lower costs.
      -for example, Honda has announced the introduction of new LEV technology that will add little or no cost to vehicles
    -significant economies of scale for the manufacturers
    -CARB's own cost estimates have generally been shown to be higher than actual price differences
    -auto industry experience has consistently demonstrated rapid price decreases in successive model years for newly-introduced technology
    -National LEV program includes numerous provisions to harmonize federal and California motor vehicle requirements, providing manufacturers with additional savings

- Annualized estimated cost of NLEV Program - $950 million

Ozone Nonattainment Areas/Population

- There are 111 million people living in classified ozone nonattainment areas today.
  - 50 million in the OTR
  - 22 million in CA
  - 39 million in areas outside CA, OTR

- There are approximately 26 million people living in areas that have been redesignated.

- Total current number of nonattaiment areas in U.S. - 66

  - Number in OTR - 33
  - Number outside OTR & CA - 25
  - Number in CA - 8

- Number designated as marginal - 26
- Number designated as moderate - 19
- Number designated as serious - 11
- Number designated as severe - 9
- Number designated as extreme - 1

- Number of former nonattainment areas redesignated to attainment - 33

- Vehicles in non-attainment areas

  Ozone:

  -approximately 15 million light-duty cars and trucks are sold in the US each year

  -approximately 11 million are sold in states with some region in ozone nonattainment

    -approximately 5 million are sold in CA, OTC states

    -approximately 6 million are sold in other states

<u>NLEV Benefits to Non-OTR States</u>

Toxics, Visibility Benefits

- National LEVs would result in a VOC reduction of as much as 185 lb/vehicle over the lifetime of the passenger car.

- National LEVs would result in a NOx reduction of as much as 186 lb/vehicle over the lifetime of the passenger car.

- Depending on the quality of a state's I/M program, National LEVs will result in a 15 - 78% reduction in toxic emissions over the lifetime of the vehicle, or 1.4 - 7.6 lbs reduction per vehicle.

- Because these vehicles will typically operate for over a decade, pollution in non-OTR states will decline by 700,000 tons for every year that NLEVs are substituted for current use cars.

- Provides margin for growth in attainment states

- Provides additional reductions to help redesignated areas stay in attainment

Greenhouse Gases/Global Warming/Other Effects

- NOx:
    - Of the six criteria pollutants monitored nationally over the last 25 years, NOx is the only pollutant for which emissions have increased
    - Emissions of nitrogen oxides include nitrous oxide, which itself is a greenhouse gas
    - Nitrous oxide emissions contribute about 6% of the greenhouse effect
    - In addition, emissions of nitrogen oxides lead to the formation of tropospheric ozone, which is another greenhouse gas.
    - Excessive nitrogen from air pollution can result in the acidification of lakes, streams, and soils.
    - Air pollution contributes to increased nitrogen loadings in water bodies, which in turn accelerates eutrophication - an over-enrichment of eco-system which results in significant oxygen depletion, dieback of underwater plants, and reduced populations of fish and shellfish
    - NOx emissions can interfere with the transmission of light, limiting visual range and color discrimination. Nitrogen dioxide is a reddish brown gas that can impair visibility.