FINAL REPORT OF THE PENNSYLVANIA LOW EMMISSION VEHICLE COMMISION

Submitted To:
Governor Robert P. Casey
Pennsylvania General Assembly

August 13,1993

REPORT OF THE LEV COMMISSION

INTRODUCTION

The Pennsylvania Low Emissions Vehicle Commission ("Commission") was created by Act 166, House Bill 2751 of the Session of 1992. The legislation created a 13 member Commission charged with producing a study to include the following analysis:

(1) Whether adoption of the low emissions vehicle program will result in significant net air quality improvements, using appropriate air quality modeling analysis and considering both volatile organic compound and nitrogen oxide emissions and their impact on ambient ozone levels; and

(2) Whether adoption of the low emissions vehicle program will result in a more cost effective reduction in ozone precursors than other alternative control strategies for mobile and stationary sources to achieve and maintain the NAAQS standards established by the Clean Air Act Public Law 95-95, 42 U.S.C. § 7401 et seq.) including the low emissions vehicle program's impact on economic development, future economic expansion, benefits to public health, welfare and environment and the fiscal impact on the consumer.

The Commission understood its task as requiring a review of the optional mobile source control strategy implementing motor vehicle tailpipe emissions standards required by the state of California. These standards are primarily intended to reduce the amount of volatile organic compounds (VOCs) and nitrogen oxides (NOx) from motor vehicles.

The Commission members include the following individuals:

Honorable Andrew Greenberg, Secretary of Commerce
Honorable Arthur Davis, Secretary of Environmental Resources
Honorable Howard Yerusalim, Secretary of Transportation
State Senator Gerald LaValle, Appointed by Majority Leader of the Senate
State Senator J. Doyle Corman, Appointed by Minority Leader of the Senate

State Representative Keith McCall, Appointed by Majority Leader of the House of Representatives
State Representative Larry Sather, Appointed by Minority Leader of the House of Representatives
Wayne Ewing, Associated Petroleum Industries of Pennsylvania Representative Appointed by the Governor
Gary Babin, Pennsylvania Gas Association Representative, Appointed by the Governor
Richard Flati, Pennsylvania Electric Association Representative, Appointed by the Governor
Garvin Kissinger, Pennsylvania AAA Federation, Appointed by the Governor
Peter Bauer, Pennsylvania Automotive Association Representative, Appointed by the Governor
Richard Hayden, Member, Board of Directors of the Pennsylvania Environmental Council, Appointed by the Governor; Chairman of the Commission

At a public meeting of the Commission, the Commission members created a technical subcommittee whose members include: Gary Babin, Peter Bauer, Wayne Ewing, Richard Flati and Richard Hayden. The technical subcommittee retained a technical consultant to assist the Commission in its deliberations. The full Commission approved the selection of the Middle Atlantic Universities Transportation Center (MAUTC), based at Penn State in University Park, Pennsylvania as the technical consultant for the project. The Commission approved the scope of work to be performed by the technical consultant. (A copy of the Scope of Work is attached to this report.)

MAUTC compiled Pennsylvania ozone precursor emissions data for use in conducting mobile source computer air modeling. MAUTC conducted the air modeling using the latest version of EPA's mobile source air model, the Mobile 5A. The air modeling included an analysis of several alternative mobile source control strategies. This included separate analyses of the impact of the mandatory federal vehicle standards (Tier I) as well as the

optional standards which may be adopted in model year 2003 (Tier II). In addition, an independent analysis of the cost-effectiveness of various mobile source and stationary source control strategies was prepared. Finally, an economic model gauging the impact on employment caused by the implementation of various control strategies was completed.

The members of the technical subcommittee worked closely with the MAUTC team in the preparation of data which was used to complete the air modeling, cost-effectiveness and economic impact analysis produced in MAUTC's final report. The Commission commends the efforts of the MAUTC team in producing their comprehensive final report in a timely fashion. The team includes Konstadinos G. Goulias, Ph.D., Thomas Litzinger, Ph.D., and Jon Nelson, Ph.D.

COMMISSION PROCESS AND CONCLUSIONS

In addition to the work of the technical sub-committee and the MAUTC team, the Commission conducted six public hearings on the role of LEV as an ozone control strategy for Pennsylvania. Testimony was presented by, among others, EPA Region III, Manufacturers of Emissions Control Association, the Chesapeake Bay Commission, the Department of Environmental Resources and the associations represented by individual Commission members.

The last public hearing was held on July 30 and was devoted to a presentation of the draft final report by the MAUTC team. At the conclusion of all of the testimony and after a review of the MAUTC report, the Commission considered a number of motions embodying recommendations for inclusion in the final report.

A recitation of these motions with an accompanying brief explanation is provided in this report. The explanations are intended to highlight issues brought to the Commissions attention. For a more detailed review, the Commission recommends that interested parties consult the final MAUTC report and the testimony on file with the Department of Transportation.

Motion offered by Representative Keith McCall adopted by unanimous vote after rejection of the minority motion:

> *"Implementation of the mandatory and discretionary control strategies adopted by the Commonwealth for VOCs and NOx will result in substantial reductions in these ozone precursors.*
>
> *These control strategies may result in attainment of the National Ambient Air Quality Standard for ozone throughout the Commonwealth.*
>
> *The available data regarding the emissions reductions and the cost-effectiveness of such reductions attributable to LEV are inconclusive.*
>
> *Therefore, the Commission recommends to the Governor and the General Assembly that no Department, Board or Commission shall propose or adopt a California LEV program for Pennsylvania before January 1, 1995 prior to proposing a California LEV regulation, after January 1, 1995, the Department of Transportation and the Department of Environmental Resources shall prepare a report to the Senate Transportation Committee, Senate Environmental Resources and Energy Committee, House Transportation*

Committee and House Conservation Committee containing information regarding the Commonwealth's attainment status for ozone. The report shall including, but not be limited to, the most current ozone inventory data, results of urban air modeling and status of the Commonwealth's participation in the Ozone Transport Commission.

CURRENT STATUS OF PENNSYLVANIA OZONE ATTAINMENT

In order to properly evaluate the LEV Program's effectiveness in Pennsylvania, the Commission examined the current status of ozone attainment in Pennsylvania. The information produced by DER reveals that regions of the state fall into one of five categories. (A copy of the ozone attainment status map is attached to this report.) These ozone non-attainment classifications trigger certain obligations for achieving and maintaining the National Ambient Air Quality Standard (NAAQS) for ozone. The standard in the Clean Air Act for attainment of ozone is 0.120 parts per million (ppm).

A review of the map shows that with the exception of the five counties in the southeast portion of the state, Pennsylvania must achieve and show an ability to maintain the standard for ozone by November 1996. In fact, by November, 1993, the Commonwealth must demonstrate that all but 13 counties of the state are in attainment for ozone. These facts are significant in evaluating the LEV program for Pennsylvania.

In testimony before the Commission, advocates of LEV continually emphasized the role of LEV as a maintenance strategy, rather than as a control strategy likely to contribute

toward achievement of the ozone standard. Other control strategies will be required to meet the 15% VOC reduction requirements in 1996, as well as the additional VOC control strategies for southeastern Pennsylvania.

The Clean Air Act requires that reductions occur beyond the levels reflected in the 1990 Pennsylvania baseline ozone emissions inventory. One of the problems encountered by the Commission was the unavailability of current ozone inventory data for stationary and mobile sources on both a statewide and air quality control region basis. The Commission understands that this data is required by the Clean Air Act and must be submitted as part of our State Implementation Plan in November 1993. MAUTC adjusted existing emissions inventory data for use in the Mobile 5A scenario. That data reflected the following totals:

Revised 1990 Baseline Inventory

		Point	Area	Highway	Off-Road	Total
VOC	TPD	484	775	840*	165	2,264
NOx	TPD	2235	73	765*	279	3,352

* MAUTC revised date. TPD - tons per day.

In addition to updating the baseline 1990 inventory, DER is also required to submit projections for 1996 considering implementation of control measures. Although the Department has stated that implementation of mandatory control measures alone will be

insufficient to meet the Clean Air Act mandate for ozone, accurate information is critical in the view of the Commission to determine whether the LEV program, as a discretionary control strategy, should be implemented in Pennsylvania.

The Commission believes that an analysis of the Allegheny County air region supports its conclusion that substantial reductions in VOCs and NOx will occur as a result of the implementation of control strategies already in place in Pennsylvania.

Allegheny County Air Region Case Study - DER provided mobile source ozone inventory data for air quality control region 11 which includes the following counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Washington and Westmoreland. This area has been designated as moderate nonattainment for ozone and therefore must achieve attainment of the ozone health standard by November 1996. MAUTC revised data for this region resulted in total emissions inventory for mobile source ozone precursors for 1990 as follows:

Year	VOCs (HCs)	NOx
1990	195.90 tpd	160.96 tpd

By the beginning of calendar year 1997, the following mobile source control strategies for this region will include:

- Stage II Controls for relevant counties (Allegheny, Beaver, Washington, Westmoreland)
- Enhanced inspection and maintenance program for relevant counties (Allegheny, Beaver, Washington, Westmoreland)
- Federal reformulated gasoline (RFG)
- Onboard vapor recovery systems beginning in 1997
- Vehicle fleet turnover
- Initial phase-in of Tier I vehicles
- Reduced RVP

By the year 1997, the implementation of these mobile source control strategies produces the following results:

Year	VOCs (HCs)	NOx
1997	93.37 tpd	130.93 tpd

MAUTC adjusted data.

This analysis reveals substantial reductions in VOCs and in NOx emissions without implementation of the LEV program. Although complete data for Point Source and Area Source controls was not available, the Commission believes that implementation of mandatory control strategies such as surface coating VOC controls, reasonably available control technology requirements (RACT) for major sources of VOCs and NOx and implementation of Phase I under Title IV will yield substantial further reductions in VOC and NOx emissions. The Commission is aware that these control strategies may not permit this region to meet the separate requirement for 15% emission reductions of VOCs but it is

also recognized that the LEV program, if implemented, is not likely to have an effect on the 1996 15% reduction credit.

This air quality control region serves an example of the broader conclusion drawn by the Commission. That is, that complete Point, Area and Mobile Source data may yield the conclusion that additional discretionary control strategies are unnecessary to achieve attainment and maintenance of the ozone standard for Pennsylvania.

Ozone Transport Region requirements - The Commission received several comments about the obligations of Pennsylvania as an Ozone Transport Region (OTR) state. Testimony was offered comparing Pennsylvania's ozone exceedances with those experienced by California. The Commission believes that New Jersey's experience offers a more appropriate comparison.

Days with Ozone Violations
at any Site in the State

Year	Pennsylvania	New Jersey
1988	39	45
1989	13	18
1990	7	23
1991	14	26
1992	2	9

* Source-EPA's AIRS data base

Virtually the entire state of New Jersey is classified as severe nonattainment for ozone. The data suggest that Pennsylvania is closer to achieving the ozone standard than our neighboring OTR state. Although we recognize the regional implications of ozone nonattainment, the primary objective of the Clean Air Act is for each state to achieve and maintain the ozone standard.

During the Commission's deliberations, there was some confusion over whether membership in the OTR automatically triggers a statewide classification of moderate nonattainment for ozone. The Commission understands that the Clean Air Act (42 U.S.C. 7511 (b)(2)) treats all stationary sources of VOCs in OTR states as if in moderate nonattainment areas. However, the Commission is aware of no comparable statutory or regulatory authority for mobile sources classifications.

EMISSIONS IMPACT AND COST EFFECTIVENESS OF LEV

The technical subcommittee requested that the MAUTC team review a broad range of scenarios showing the impact of the implementation of various mobile source control strategies in Pennsylvania. The Commission believes that the most likely scenario for mobile source controls by 1995 will incorporate all of the mobile source controls strategies listed in the prior analysis for the Allegheny air quality region. The one additional mobile source control strategy which would apply to southeastern Pennsylvania is the employer trip reduction which was not part of the Mobile 5A computer air model. This is identified as

scenario 4b at Table 2.3.5 of the MAUTC report. Sample statewide data for three years reveals the following:

Year	VOCs (HCs)	NOx tpd
1996	504.13	664.68
2005	304.97	567.87
2010	284.51	579.71

Implementation of the complete LEV program including zero emission vehicles (ZEVs), in addition to the other mobile source controls yields the following comparable figures:

Year	VOCs (HCs)	NOx tpd
1996	504.13	664.68
2005	288.65	530.82
2010	256.13	516.63

This is identified as scenario 4c in the MAUTC report and appears at Table 2.3.3.6.

The Commission believes that the incremental emissions benefits resulting from the adoption of the LEV program over the Tier I emissions standards produces a minimal impact when viewed in the context of other mobile source controls and in the context of mobile sources total contributions toward the ozone problem in Pennsylvania. The Commission

believes that the incremental benefit of LEV is even further diminished when compared to the Tier II car which may be implemented in 2003.

Selected data incorporating Tier II with existing mobile source control strategies appears as scenario 6a in the MAUTC report at Table 2.3.14. Relevant years reveals the following results:

Year	VOCs (HCs)	NOx
1996	504.13	664.68
2005	301.79	557.69
2010	273.78	543.79

One of the Commission's tasks was to evaluate the comparative costs of implementation of the LEV program in Pennsylvania. The technical subcommittee and the Commission received widely varying estimates of costs of implementation of LEV. The lowest costs estimates were submitted in materials provided by the California Air Resources Board (CARB). The high costs estimates were submitted in material from the American Automobile Manufacturers Association (AAMA) prepared by the Automotive Consultant Group (ACG). Using the medium costs per vehicle converted to a cost per ton basis yields a cost of implementation of $23,000 per ton (VOC plus NOx) for an LEV program without zero emission vehicles. This compares to a comparable analysis of point source reductions in the medium cost range from a low of $4,000 per ton to a high of $8,000 per ton (VOCs plus NOx).

Part of the difficulty in evaluating cost effectiveness data for the LEV control strategy lies in the fact that researchers are required to project costs for technology which is not yet in production. The AAMA emphasized that while there are encouraging signs for the development of LEV technology, there are no current devices which meet all of the performance standards of the LEV program as dictated by California's regulations.

An additional charge of the Commission was to evaluate the relative economic impact of the LEV program in Pennsylvania. Economic modeling produced by the MAUTC team demonstrated that LEV and point source controls have similar impacts on the total employment figures for the Commonwealth. It was noted that LEV has a larger negative impact on the service and trade sectors of the Pennsylvania economy while point source controls have greater negative impact on manufacturing employment.

House Bill 2751 also contained a statutory prohibition against adoption of California reformulated gasoline. The analysis conducted by MAUTC demonstrates that the cost per ton over and above federal reformulated gasoline falls within a range from $12,300 per ton to $17,500 per ton (combined VOC plus NOx) and has a dramatic adverse impact on employment. The Commission believes that these results corroborate the legislature's judgment that California reformulated gasoline should not be part of Pennsylvania's ozone compliance strategy.

For the reasons set forth previously, the Commission does not believe that the information available supports the conclusion that LEV should be a part of the Commonwealth's ozone attainment strategy at this time. The Commission is aware that DER is in the process of completing two relevant state implementation plan submissions due for completion by November 15, 1993. They include the requirement to demonstrate attainment and 15% emission reduction demonstrations as well as the completion of the VOC and NOx emission inventories. Another critical date from the Commission's point of view is November, 1994, when DER will have completed work on the urban ozone airshed model. The completion of those air model calculations will enable DER and PENNDOT to present a more accurate picture of Pennsylvania's ozone compliance.

Motion offered by Representative Larry Sather which was adopted by a vote of 11-2 with Secretary Yerusalim and Deputy Secretary Corman dissenting stated:

The Commission urges the Administration and the General Assembly to move expeditiously to establish and fund an independent comparative air modeling program in conjunction with DER's current program so that future considerations and decisions on the adoption of clean air strategies can be based on better data than is currently available.

The Commission believes that the responsible regulatory agencies, the General Assembly and those impacted by regulatory decisions would benefit by the addition of another, independent source of ozone air modeling data.

A Motion offered by Richard Hayden, adopted by a vote of 12-1, with Senator Corman dissenting states:

The Commission rejects the implementation of a regional LEV program vis-a-vis a statewide LEV program, as part of the Commonwealth's Clean Air Act implementation strategy.

The Commission believes that a Pennsylvania regional LEV program, in lieu of a statewide program, would create the following problems: questions about the proper distribution of vehicles, administrative enforcement, and concern about the proper value of emission credits recognized by the EPA. For these reasons, the Commission recommends that the Commonwealth reject a region-only strategy for LEV.

Minority Comment - The following motion was supported by Commission members Hayden, Flati, Kim Albright (on behalf of Secretary Greenberg), Secretary Yerusalim, Deputy Secretary Cowan (on behalf of Secretary Davis), and Dennis Capella (on behalf of Gary Babin).

> *"Implementation of the LEV Program will result in substantial reductions in ozone precursors in Pennsylvania.*
>
> *LEV produces these reductions in the cost-effective manner when compared to other mobile source and stationary source controls.*
>
> *Failure to implement LEV in Pennsylvania places Pennsylvania at risk in meeting the maintenance requirements for ozone attainment in Pennsylvania, particularly when viewed in the context of the Commonwealth's obligations as a member of the Ozone Transport Region.*
>
> *Therefore, the Commission recommends that Pennsylvania enact the LEV regulation as part of its statewide strategy for implementation of the Clean Air Act."*

The supporters of this Motion recognize the difficulty in drawing conclusions based upon incomplete data, but believe that the information supplied by the MAUTC team supports adoption of LEV now, rather than to defer judgment until January, 1995 or later.

EMISSIONS REDUCTIONS FROM LEV

As has been stated on many occasions, LEV's principal value is as an ozone maintenance strategy. However, we believe that LEV has value as part of the Commonwealth's strategy to achieve the standard in the serious nonattainment areas of the state. Demonstration of that point is revealed in the information generated by the MAUTC team. Although implementation of the range of mobile source controls will produce

reductions in VOCs and NOx, those reductions begin to erode over time. The following figures support that conclusion:

Year	VOCs (HCs)	NOx
2010	284.51 tpd	579.71 tpd
2015	288.58 tpd	602.62 tpd
2020	298.46 tpd	629.02 tpd

* Scenario 4b at Table 2.3.5 without LEV

When the complete LEV program is implemented, in addition to the other mobile source controls, the following emission levels result:

Year	VOCs (HCs)	NOx
2010	256.13 tpd	516.63 tpd
2015	250.99 tpd	520.34 tpd
2020	256.70 tpd	537.59 tpd

* Scenario 4c at Table 2.3.6 with LEV

As these figures indicate, not only is there a significant benefit in the total emissions reductions attributable to LEV but the erosion of those benefits is less severe than that which occurs under a Tier I scenario.

This conclusion is a reflection of the fact that the total number of mobile sources, as well as the miles travelled by those mobile sources, are not subject to the same controls that are applied to stationary sources under the Clean Air Act. Stated simply, although automobile pollution control equipment has improved, the total pollution gains from those improvements has been reduced by the increase in the number of cars on the road and the miles travelled by those cars. This growth will continue largely unchecked by the Clean Air Act. In fact, the MAUTC team used an average figure of a 1.6% growth per year in vehicle miles travelled in compiling the data for its Mobile 5A analysis.

This unchecked growth of mobile sources contrasts with the requirement for net emissions reductions by stationary sources of ozone precursors. The New Source Review requirement in the Clean Air Act requires net reductions in emissions of ozone precursors before an expansion of an existing facility or permitting of a new facility. For much of the state of Pennsylvania, these offset ratios range from 1:1.15 to 1:1.3.

OZONE TRANSPORT REGION ACTIVITIES

A number of states in the OTR have already taken affirmative steps to adopt LEV. Maine has adopted a regulation which would begin LEV with model year 1996. Maryland has enacted legislation which would adopt LEV beginning model year 1998 subject to a regional adoption trigger. Massachusetts has adopted its regulation and intends to implement LEV beginning in model year 1995. New Jersey has approved legislation which would enact LEV no later than model year 1998 subject to a regional adoption trigger. New York has adopted an LEV regulation which would begin with the 1995 model year.

ECONOMIC IMPACT

The supporters of this motion are concerned that, in order to meet the ozone compliance standard, further reductions may be required for stationary sources. When viewed against the actions of our neighboring OTR states, failure to adopt LEV risks places Pennsylvania businesses at a competitive disadvantage over those businesses in Eastern states which will implement LEV. In addition, we are concerned about the adverse impact on Pennsylvania businesses when compared to states to our west and south which are not in the OTR, and therefore not subject to the stricter stationary source controls for ozone.

The economic impact data prepared by MAUTC supports the conclusion that the manufacturing sector of Pennsylvania's economy absorbs a greater job loss when additional

stationary source controls are applied in lieu of mobile source controls. These costs are in addition to the offset requirements under the Clean Air Act.

The other alternatives to achieve additional VOC and NOx reductions would be to implement additional area source and mobile source control strategies which are likely to be less favored by consumers and automobile users. Those include road user taxes, restricted highway access and additional transportation control measures.

COST EFFECTIVENESS OF LEV

We are convinced that there have been significant advances in automotive pollution control technology toward achievement of the LEV standards. We are encouraged by recent developments at the Corning Company, and other members of the Manufacturers of Emissions Control Association (MECA) in obtaining certification of the tailpipe standards. We also believe that it is likely that a number of applications of this technology will soon be able to meet the performance standards required by the state of California.

We have reservations concerning the assumption that Tier II remains as a viable ozone control strategy. The AAMA emphasized that there were no proven production technologies for LEV, although California has started implementation of the program. The Commission never received information demonstrating that production technology exists to achieve the Tier II standards, which would not be implemented until 2003 at the earliest.

Yet, the AAMA continually proposed Tier II as the alternative mobile source control strategy to LEV. As another discretionary control strategy, Tier II's fate is far from certain.

While AAMA disputed the cost estimates for LEV implementation submitted by CARB, we believe that the estimates submitted by MECA and their associate members provide a more credible view of the costs of LEV implementation than the figures submitted by the ACG. When these proper costs are evaluated compared to comparable stationary source controls, LEV emerges as a cost-effective ozone control strategy. This is particularly the case when individual costs of LEV implementation are spread across the entire automotive fleets while individual stationary source reductions must be borne by far fewer sources.

CONCLUSION

We appreciate Representative McCall's attempts to achieve a consensus on the recommendations regarding the future of the LEV program in Pennsylvania. We supported his motion after our motion failed because it recognizes that LEV may still be a part of Pennsylvania's ozone compliance strategy in the future.

PENNSYLVANIA ELECTRIC ASSOCIATION

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August 13, 1993

MINORITY POSITION STATEMENT

Only after the minority position motion failed by a single vote did I join with my fellow commission members in the unanimous vote for the majority position motion. I did so because at least the successful majority motion, while not recommending the prompt enactment of an LEV program, as did the minority motion, never the less leaves the door open for its relatively timely enactment in the near future.

I have no doubt that sooner or later an LEV program will be implemented in Pennsylvania, as it will also be in the other states of the Northeast Ozone Transport Region (OTR). Pennsylvania's air quality, economic development, and future enhancement of its manufacturing jobs would have been far better served by "sooner" implementation, but a little "later" implementation will clearly better serve those vital interests than "never". Briefly, some reasons for my statements are these:

- Early air modeling results show that additional discretionary emission control strategies, beyond those already mandated, will be required to attain and maintain ozone air quality standards in eastern urban areas.

- Unrestrained annual growth in vehicle miles travelled will produce increasing ozone precursor emissions, thus threatening timely attainment and continued maintenance or urban ozone air quality standards.

- Forthcoming refined air modeling results will demonstrate the greater efficacy of local urban area mobile source emissions reductions in meeting urban area ozone air quality standards as opposed to the lesser efficacy of equivalent distant point source emissions reductions.

- The need will be increasingly evident for abundant, reasonable cost ozone precursor emission offsets to allow expansion and attraction of manufacturing and jobs.

MINORITY POSITION STATEMENT

- Although for many reasons virtually certain never to occur, but even if, Federal adoption of the TIER II vehicle emissions standards in 2003 will be far too late to provide for Pennsylvania the improved air quality, economic development, and manufacturing job enhancements promised by a near-future implementation of an LEV program, and last but certainly not least

- Preventing federal government imposition of sanctions, such as loss of highway, mass transit, and other funds, for failure to meet air quality standards.

In a broader perspective, the clear consensus among the majority of OTR states to promptly implement an LEV program is convincing objective evidence of the many benefits of an LEV program. Regrettably, as in Pennsylvania. these OTR states' efforts have been opposed and delayed by the actions of the same opposition interests. These interests continue to make exaggerated claims of high costs and technical difficulties in the face of competitive emissions control technology developments, such as we saw at Corning, clearly promising early realization of a reliable LEV at relatively insignificant additional cost when compared to today's average new vehicle selling price.

It is perhaps ironic, and foretelling, that on the day before the release of these reports, the OTR states of Maine, Massachusetts, and Maryland, as earlier rumored, have filed a motion with the Ozone Transport Commission (OTC) to petition the EPA Administrator to exercise his authority under the 1990 CAAA to mandate an LEV program in the OTR. By failing to promptly move on its own initiative to implement an LEV program, Pennsylvania may have yielded discretion to shape its own LEV program to the dictates of a Federal agency.

Respectfully submitted,

Richard A. Flati
Member - Low Emissions
Vehicle Commission

Statement
by
Garvin R. Kissinger, Vice President, Public Affairs
AAA Mid-Atlantic
LEV Commission Member,
Representing the Pennsylvania AAA Federation

As a member of the LEV Commission representing over 2.3 million AAA motorists across the Commonwealth of Pennsylvania, it is important to summarize our perspective of the LEV Commission's final recommendation, which passed unanimously, and our support of the report.

It is important to note that the AAA Clubs, and undoubtedly the motorist, support all reasonable efforts to clean the air. However, we believe that the adoption of the California LEV is premature because there are too many unanswered issues.

- The lack of current ozone inventory data for both stationary and mobile sources on both a statewide and air quality basis. Until we know where we are it is difficult to ascertain the effectiveness of the mandatory control measures.

- A decision on the Tier II car by EPA will not be forthcoming until 1997. We believe it is premature to adopt an LEV until the decision on the Tier II vehicle is made. The incremental benefit of the LEV over the Tier II vehicle does not warrant an early adoption of the LEV.

- Adopting the California LEV removes the regulatory process of the LEV from Pennsylvania and places it in the hands of California. According to EPA, if a state adopts the California LEV that state must abide by any regulatory changes California makes for the LEV. In essence, California is now regulating the LEV for the Legislators and citizens of this Commonwealth.

- What is the cost of the California LEV? Incremental cost estimates range from $100 to $1,100 per vehicle.

In conclusion, we do support efforts to further clean the air of the Commonwealth and believe all reasonable efforts should be taken. The motorist will be subjected to an Enhanced I/M program beginning January 1, 1995, and in certain areas of the Commonwealth pays an additional three to five cents per gallon more for oxygenated fuels during the winter months. In addition, Federal Reformulated Gasoline (FRG) at an additional cost of five to fifteen cents per gallon will be in place January, 1995.

We believe the motorist is doing his fair share to help reduce emissions that contribute to the ozone problem. To delay action on the adoption of an LEV for the Commonwealth, until we have definitive answers, is the prudent thing to do.

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PENNSYLVANIA AUTOMOTIVE ASSOCIATION

August 12, 1993

Richard W. Hayden
Buchanan Ingersol
Two Logan Square, 12th Floor
18th and Arch Streets
Philadelphia, PA 19103

Dear Mr. Hayden:

The following is provided in conjunction with the Pennsylvania Low Emissions Vehicle Commission's final report submitted on August 13, 1993. As a Commission member, I strongly support the Commission's finding that the available data and information do not support the adoption of the California Low Emission Vehicle/Clean Fuels (LEV/CF) program as part of Pennsylvania's ozone attainment strategy.

The nature and magnitude of the ozone problems in Pennsylvania do not compare to Southern California, the region for which the LEV/CF program was designed. Pennsylvania has exceeded the ozone standard roughly one tenth as often as Southern California. Also, as a result of recent gasoline volatility controls and vehicle fleet turnover, there has been a significant downward trend in ozone data. In 1992, the standard was exceeded on only two days throughout the state. Clean Air Act "Tier 1" vehicle standards, beginning in 1994, are expected to reduce ozone even further, possibly resulting in statewide compliance with the standard.

As the Mid-Atlantic Universities Transportation Center (MAUTC) study for the Commission indicated, the LEV program, as it was proposed to be adopted in Pennsylvania, is capable of providing only minimal reductions in VOC and NOx ozone precursor emissions. Specifically, in 2005, the required ozone attainment year of the Philadelphia area, LEV could reduce VOC emissions by only 3 percent and NOx emissions by only 4 percent beyond the Clean Air Act Tier 1 program. If the federal Tier 2 standards reductions apply only to mobile sources, the reduction in the overall VOC and NOx inventories are even smaller. The Pennsylvania Department of Environmental Resources (DER) reported that for 1990 mobile sources accounted for about one third of the VOC and one fourth of the NOx. By 2005, they will account for a much smaller portion of the total. The potential LEV reductions then become insignificant as a means of reducing ozone precursor emissions.

In spite of the wide disparity of cost estimates for the LEV vehicles, it is clear that the program would add substantial consumer cost to new vehicles and potentially to gasoline. Whether the California "Phase 2" reformulated gasoline is linked to the LEV/CF program is currently the subject of the litigation in the states of New York and Massachusetts. There are also other legal concerns with adoption of the program. For example, enforcement of the NMOG curve may artificially limit sales of certain vehicles, a situation which is specifically prohibited by the Clean Air Act.

As the Commission decided, it is inappropriate to adopt additional discretionary control strategies such as the LEV/CF program until ozone air modeling has been completed.

I appreciate the opportunity to have served on the Low Emissions Vehicle Commission and to have participated in deciding such an important issue to the Commonwealth of Pennsylvania.

Sincerely,

Peter K. Bauer

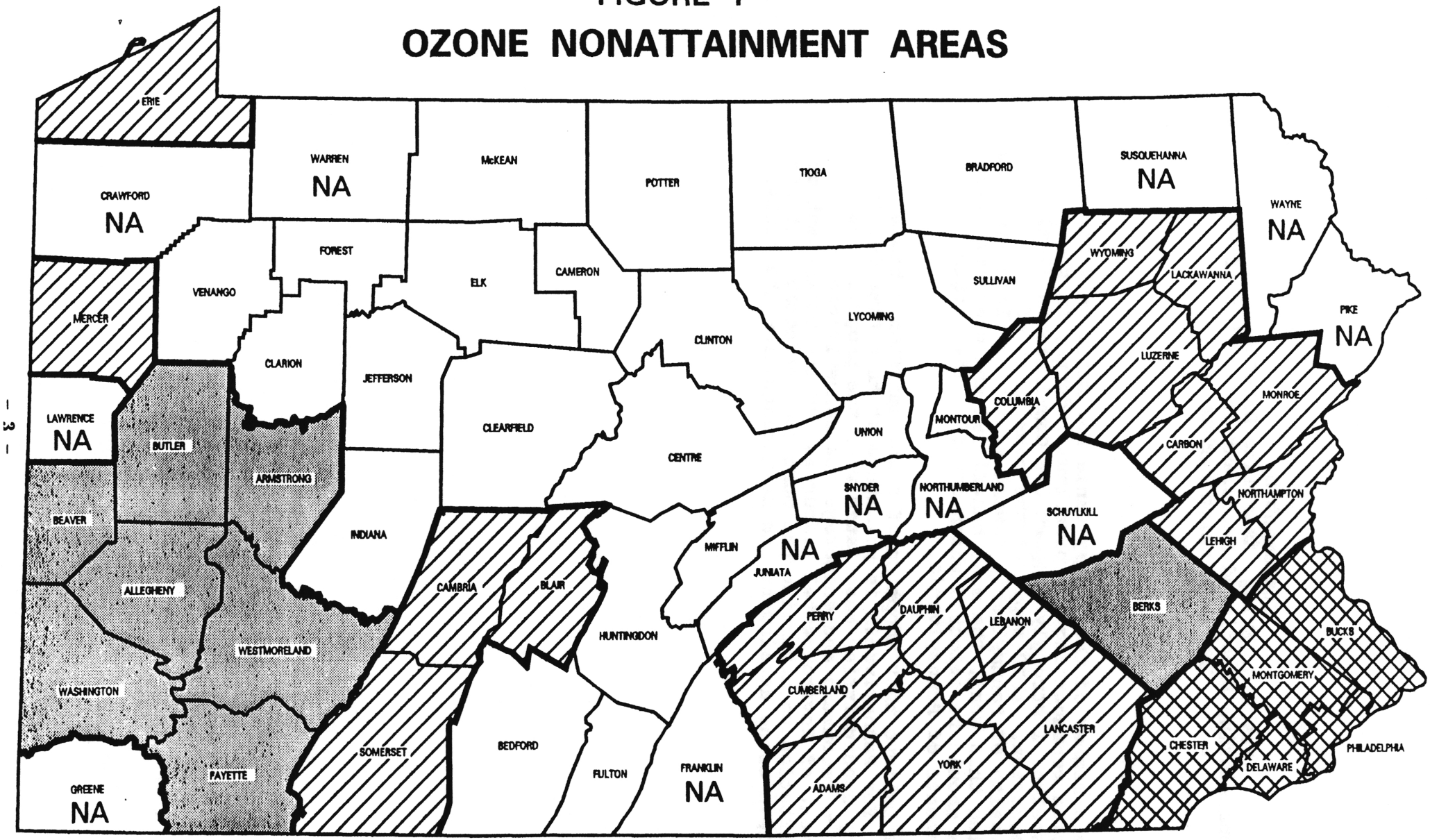
Peter K. Bauer

Statement by
Wayne S. Ewing, Associate Director
Representing Associated Petroleum Industries of PA
LEV Commission Member

As a member of the Pennsylvania Low Emission Vehicle Commission representing the petroleum industry in the Commonwealth, I strongly support the Commission's final recommendation. APIP supports the commitment of the Commonwealth of Pennsylvania toward achieving clean air. In achieving this goal, the most beneficial and cost-effective methods should be selected which consider the unique requirements of Pennsylvania.

We believe that adoption of a low emission vehicle program for Pennsylvania is premature at this time due to the many uncertainties associated with the program. We therefore recommend and encourage the Pennsylvania Department of Environmental Resources and the Department of Transportation to determine the most cost-effective methods to achieve ozone attainment and maintenance for the state.

FIGURE 1
OZONE NONATTAINMENT AREAS



Attainment Deadline (From Enactment)		3 Years	6 Years	15 Years
	NA Nonattainment	Marginal	Moderate	Severe 1
No. of Counties	12	20	8	5

May 12, 1993

SCOPE OF WORK FOR OUTSIDE CONSULTANT

LEV COMMISSION TECHNICAL CONSULTANT PROJECT

INTRODUCTION -- The Pennsylvania Low Emission Vehicle Commission, created by the enactment of Act 166 of 1992, established a 13-member commission charged with the responsibility of studying the environmental and economic impacts of the adoption of the Low Emission Vehicle ("LEV") program as part of Pennsylvania's implementation strategy to fulfill its obligations under the federal Clean Air Act Amendments of 1990 ("CAA"). The Act requires that, among other things, the Commission submit a completed report to the Governor and the Pennsylvania General Assembly by August 13, 1993. A copy of Act 166 is attached for reference. The work of the Technical Consultant and the sub-contractor, if applicable, shall conform to its requirements.

At its second public meeting, the Commission created a Technical Subcommittee whose members include: Gary Babin, Peter Bauer, Wayne Ewing, Richard Flati and Richard Hayden. The subcommittee has been directed to select an independent consultant to assist the Commission in its deliberations.

Scope of Work -- Under the authority granted by the CAA, the Environmental Protection Agency ("EPA") has evaluated the air quality control regions in Pennsylvania to determine whether the state has achieved the attainment goals for certain criteria pollutants. A number of those regions have been designated as non-attainment for the National Ambient Air Quality

Standard ("NAAQS") for ozone. The CAA requires that state achieve and maintain the NAAQS for ozone.

The Commission's primary focus on the LEV program is to evaluate its effectiveness as a control strategy for ozone emissions compared to other potential options. The study will concentrate on how ozone precursor emissions are impacted by all options including cost effectiveness. The evaluation shall also consider air quality improvements, economic impacts and benefits to public health and welfare. For this study, ozone precursors are recognized as nitrogen oxides ("NOx") and volatile organic compounds ("VOCs"). With these objectives in mind, the consultant shall prepare the following:

I. Assessment of Current Status.

A. Identify the stationary and mobile source inventories and ozone control strategies included in the latest draft Pennsylvania State Implementation Plan ("SIP") available. Perform:

1. an analysis of the emission credits and estimated cost per ton attributable to each control measure.

2. an analysis which includes whether the control measure is to be imposed statewide or by specific region based upon ozone attainment status.

B. List the proposed point, area, and stationary source ozone control strategies which are awaiting final rulemaking under the Pennsylvania Act and EPA authority.

1. an analysis of the emission credits and estimated cost per ton attributable to each control measure.

2. an analysis which includes whether the control measure is to be imposed statewide or by specific region based upon ozone attainment status.

C. Identify all of the mandatory stationary and mobile source ozone control strategies required to be implemented by the CAA or the Pennsylvania Air Pollution Control Act and indicate which ones are not already included under item A. above. A separate list should be compiled to include which, if any, of the strategies may be imposed on Pennsylvania by virtue of its inclusion in the Ozone Transport Region ("OTR"). Perform:

1. an analysis of the emission credits and estimated cost per ton attributable to each control measure;

2. an analysis which includes whether the control measure is to be imposed statewide or by specific region based upon ozone attainment status;

3. an analysis of the control measure's contribution toward maintenance of the NAAQS for ozone and long-range impact on the PA economy.

D. Compile the aggregated data generated by A-C, above, and evaluate the impact, by region, on Pennsylvania's obligations to achieve and maintain the NAAQS for ozone under the CAA.

II. **Low Emission Vehicle Specific Analysis** -- In reviewing the specific impact of the LEV strategy in Pennsylvania, the consultant should be guided by the following:

A. Obtain the necessary data from all appropriate sources to perform an analysis of emissions impact by use of the Mobile 5A computer emissions factor air model.

1. The consultant will submit all input and output data and accompanying assumptions to EPA for Mobile 5A runs to verify results and credits generated by control strategies.

B. Provide alternative analyses of the federal and LEV programs considering the following assumptions.

1. PA fuel requirements (conventional gasoline, federal reformulated gasoline) plus enhanced I/M;

2. PA fuel requirements (conventional gasoline, federal reformulated gasoline) plus maximum I/M;

3. CA Phase II severely reformulated gasoline plus enhanced I/M;

4. CA Phase II severely reformulated gasoline plus maximum I/M.

C. Provide an analysis of the costs per vehicle of the federal and LEV programs.

D. Compare costs and benefits of these and all point, area and mobile source control strategies, including:

1. a per-ton-cost analysis for each pollutant reduced; and

2. identification of each sector of the Pennsylvania economy that would be impacted.

III. **Discretionary Control Strategies** -- The consultant shall assist the Commission in the evaluation of ozone control strategies not specifically mandated by the CAA but may be required to achieve and maintain the NAAQS for ozone. In preparation of this information, the consultant shall consider the effectiveness of extending existing control strategies to moderate and marginal non-attainment areas.

A. Economic Impact -- The consultant will review the economic impact of each discretionary control strategy considering the following factors:

1. a per-ton-cost analysis for each pollutant reduced; and

2. identification of each sector of the Pennsylvania economy that would be impacted.

IV. **Health Impact** -- The consultant shall review existing studies on the relative benefits to public health by the imposition of various control strategies. The consultant will prepare an evaluation of that information for the Commission's deliberations.

V. **Technical Coordination.**

A. The consultant shall confer regularly with the members of the Technical Subcommittee during the contract period. The Technical Subcommittee shall participate with the consultant in determining assumptions to be used in the study.

B. The consultant is encouraged to release information to the Technical Subcommittee and the full Commission as it becomes available. The consultant will be required to testify before the full Commission at a public meeting in July. All contract work shall be completed by July 31, 1993.

C. Results from proposed emission reduction strategies should be consistent, i.e. run on the same Mobile air emissions model basis.

VI. **Statement of Qualifications** -- The consultant shall provide names and qualifications of the project management team and assure availability of team members during the full term of the study. The consultant proposal shall include milestones, interim report dates and specific plans for interaction with the Technical Subcommittee.

VII. **Selection of Subcontractor** -- If the Technical Consultant determines that his team is unable to perform a specific function defined in the Scope of Work document, or is unable to perform a function in a timely manner, the Technical Consultant shall report that fact to the Technical Subcommittee. The Technical Subcommittee is authorized to retain a sub-contractor to perform those tasks which cannot be fulfilled by the Technical Consultant.

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