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July 21, 2010

Air Resources Board
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SUBJECT: Comments on the Draft GHG Reductions, Pursuant to Senate Bill 375

Dear Air Resources Board Chair Mary Nichols and Members of the Board:

1.0 Introductory Comments

The time for debate has long since passed. The climate science is clear; we need to achieve significant GHG reductions today if we are to avert climate disaster in the future.

1.1 AB 32, SB 375, What Science Has Determined, and Current GHG Levels

AB 32 requires California emissions, from all sources, to be at 1990 levels by 2020. The years after 2020 are covered by a Governor's executive order. It calls for emissions to be 80% below 1990 levels, by 2050. These reductions, world wide, would limit GHG levels to 450 PPM.

When AB 32 and the executive order were formulated, it was thought that limiting GHG levels to 450 PPM would provide humanity adequate safety from catastrophic climate destabilization. However, climate science now tells us that any level above 350 PPM is dangerous. Unfortunately, the current level is 390 PPM, higher than it has been in over a million years.

SB 375 was written to give CARB authority over cars and light-duty trucks, sometimes referred to as personal driving. This personal driving is quantified as vehicle miles traveled, or VMTs. Personal driving is responsible 32% of GHG in California. In San Diego County, it is responsible for 41%. SB375 calls for CARB to give each regional government in the state (Metropolitan Planning Organization, or MPO) GHG reduction targets, for personal driving, for the years 2020 and 2035. SB375 requires that CARB give each MPO their targets by September 30th of this year.

SB375 also calls for an interim "bottoms up" process to produce CARB draft targets, at this time. That is the primary subject of this public review process. CARB is to consider what the MPOs modeled and submitted to CARB as "ambitious but achievable" targets and then submit draft targets to the MPOs.

1.2 Scoping Plan Observations

AB 32 gives CARB the responsibility of allocating reductions to the various sectors. In the "Scoping Plan", adopted in December 2008, on page 17, CARB specified only 5 million tons per year as the reduction from "Regional Transportation-Related GHG Targets" by 2020.

The Plan added in a footnote, "This number represents an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target. ARB will establish regional targets for each MPO region following the input of the Regional Targets Advisory Committee and a public consultation process with MPOs and other stakeholders per SB 375.

We note that the 5 million tons identified in Table 2 is in addition to the 31.7 million tons for Light-Duty Vehicle Greenhouse Gas Standards, including the implement of Pavley I standards and developing Pavley II standards, plus 15 million tons for the Low Carbon Fuel Standard.

1.3 Danger in "Bottom Up" Process of Identifying Draft Targets

In modeling "achievable" reductions, MPOs are free to ignore both the AB 32 legal requirements for reductions and the additional reductions needed for public health and safety, in light of our need to get GHG levels down to 350 PPM as soon as possible. Local politicians on MPO Boards may push for "path-of-least-resistance" strategies, hoping to sell these strategies to CARB as "aggressive but achievable". Since government's primary responsibility, at all levels, is public health and safety and since this responsibility extends from the three branches of state government down to all boards and agencies (most of which are extensions of the executive branch), it follows that the final GHG reductions must be based on what the climate scientists have determined is safe. Such reductions will significantly exceed those required by AB 32. It is certainly CARB's responsibility to address this issue, even if it is in some other proceeding. Ignoring this issue is demonstrably criminally negligent, since it will lead to catastrophic climate destabilization, resulting in a significant die off of the human population.

1.4 Reducing GHG from Cars and Light-Duty Trucks

There are three things that will reduce GHG from driving. They are "clean cars", "clean fuels" and less driving. "Clean cars" includes the benefits of more efficient gasoline and diesel powered cars, hybrids, and battery electric vehicles (BEVs). Since some of our cars will be BEVs, when CARB computes the overall average GHG per mile of our state's fleet of cars, it must account for how much of our electricity is generated from fossil fuels. Most of our electricity will come from fossil fuels for many years, perhaps several decades. "Clean fuel" refers to fossil fuel formulated to have more hydrogen and less carbon, to result in less GHG emissions. "Clean fuel", referred to as Low Carbon Fuel Standards (LCFS), is expected to provide a 10% emission reduction by 2020, but no more after that. This paper uses the LCFS factor of nine-tenths for both 2020 and 2035, even though this may be overestimating reductions in 2035 because the factor is inappropriate for BEVs and the number of BEVs could become significant by 2035.

For at least the next decade and perhaps much longer, less driving will be needed to provide the largest reduction in GHG, relative to current 2010 levels. However, relative to the SB 375 reference year of 2005, the "clean car" reduction will provide the largest decrease in GHG, for the target year of 2020.

These factors can be observed in Figure 1 of an analysis by S. Winkleman, [1] based on CalTrans VMT forecast (red line), AB 1493 ("Pavley", green line), and the Low Carbon Fuel Standard (LCFS, purple line), compared with the AB 32 target of 1990 levels (light blue line). This Figure has been placed into this document for convenience. Note that the dark blue line, which combines all three factors, shows how the projected increase in VMT overwhelms GHG savings from cleaner fuels and vehicles. Decreasing VMT is the objective of SB 375.

2.0 Evaluation of CARB Draft Targets for 2020

The VMT reductions proposed by CARB for the MPOs, at this time, are shown in the Table 1.

It is important to note the implications of the Table 1 asterisked footnote and the fact that this target is per capita. It means that the calculation of GHG reduction estimates from this number requires the use of factors to account for population growth, the Pavley reductions ("Pavley"), and LCFS reductions, as shown below.

[1] http://www.nrdc.org/globalWarming/sb375/files/sb375.pdf

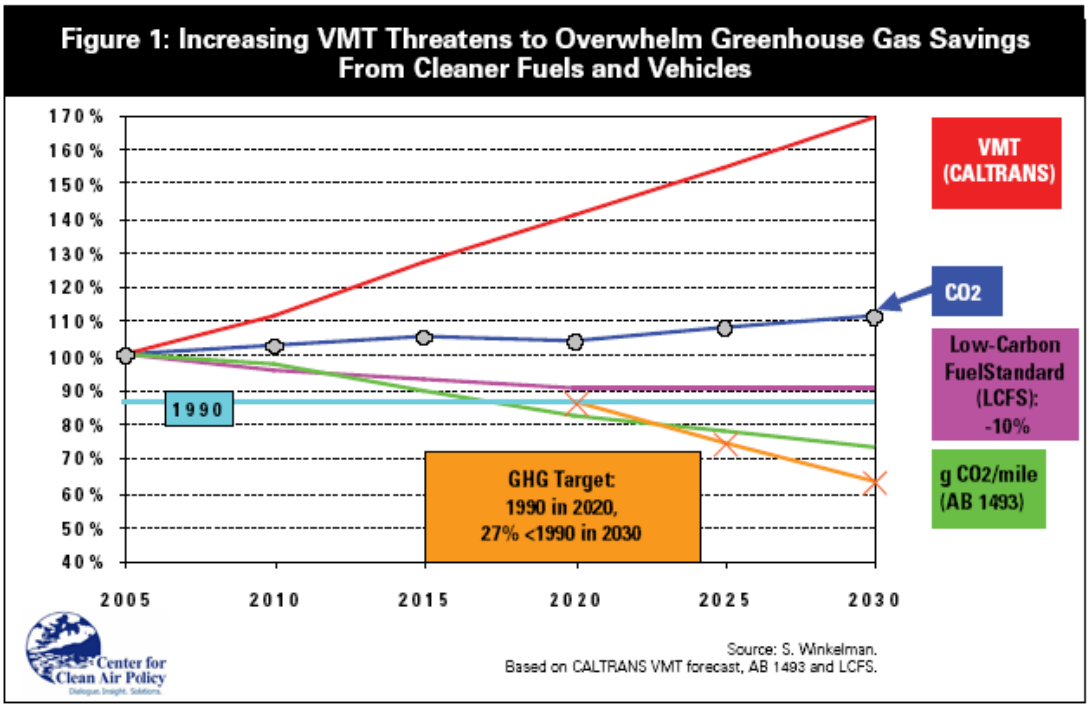

Table 1 Four Largest MPOs
Draft Greenhouse Gas Reduction Targets for 2020
(Percent Reduction in Per Capita Emissions Relative to 2005)*

MPO Regions 2020	Draft Targets
Metropolitan Transportation Commission (MTC) Sacramento Area Council of Governments (SACOG) San Diego Association of Governments (SANDAG) Southern California Association of Governments (SCAG)	5 - 10%

* Percent reduction numbers do not include emission reductions expected from Pavley Greenhouse Gas Vehicle Standards and Low Carbon Fuel Standard measures.

2.1 Adequacy, Compared to AB 32 Reductions

In order to estimate the 2020 outcome of the Table 1 reductions, the calculation must compare the net effect of above per capita reduction target, the increase in population, the Pavley reduction, and the Low Carbon Fuel Standard; with the 2005 levels. For the calculation, the following factors apply:

1. 0.95, for the per capita reduction in driving (using the lower, 5% value, from Table 1);

2. 1.196, for the 19.6% projected increase in population (based on California Dept. of Finance official projections)[2];
3. 0.825, for the 82.5%, shown for 2020, on the green "Pavley" line of Figure 1;
4. 0.90, for the reduction in low-carbon fuel standard (LCFS), as shown on the purple line of Figure 1.

Multiplying these four factors together results in a factor of (.95)*(1.196)*(.825)*(.90) = 0.85.

This is a 15% reduction and so it barely passes the reduction that would be in line with AB 32, which is around 13%, as shown in the 1990 light-blue line on Figure 1, which is also the first yellow "X" on Figure 1.

Similarly, the 10% value results in factors of (.9)*(.825)*(.90)*(1.196) = .81. This is a 19% reduction and so it passes the reduction that would be in line with AB 32, which 13%, again, as shown in the 1990 light-blue line on Figure 1, which is also the first yellow "X" on Figure 1.

2.2 Need for "Pavley" and LCFS to Meet AB 32 Reductions

What is needed is a complete picture of what the various factors are providing and whether or not both "Pavley" and the LCFS are needed to get the reductions within the AB 32 level. Therefore Tables 2 through 7 have been computed and appear here.

Table 2 Factors Used to Estimate 2020 GHG Reduction from 2005, With a 5% Driving Reduction, from 2005

GHG Reduction Factors, 2005 to 2020 VMT Per Capita Reduction of 5%				
VMT Only	**Population CA Predict**	**Pavley**	**LCFS**	**AB32 Target**
.950	1.196	.825	.900	.870

Table 3 Results of Combining Factors to Estimate 2020 GHG Reductions, With a 5% Driving Reduction from 2005

GHG Reductions, Combining Factors, 2005 to 2020, VMT Per Capita Reduction of 5%				
VMT Only	**VMT & Population**	**VMT & Population & Pavley**	**VMT & Population & Pavley & LCFS**	**Combination Within AB32?** ***Less Than .87?***
.950	1.136	.937	.844	Yes

[2] State of California, Department of Finance, *P-2 Short-term Statewide Population Projections 1995-2015*, Sacramento, California, May 2010 and State of California, Department of Finance, Population Projections for California and Its Counties 2000-2050, by Age, Gender and Race/Ethnicity, Sacramento, California, July 2007 (http://www.dof.ca.gov/research/demographic/reports/view.php).

Table 4 Percent Reductions from Combining Factors to Estimate 2020 GHG Reductions, With a 5% Driving Reduction from 2005

Combining 2005 to 2020 GHG % Reductions Starting from a VMT Per Capita Reduction of 5%				
VMT Only	VMT & Population	VMT & Population & Pavley	VMT & Population & Pavley & LCFS	Meets AB32? *(Below -13%)*
-5.0%	13.6%	-6.3%	-15.6%	Yes

Table 5 Factors Used to Estimate 2020 GHG Reduction from 2005, With a 10% Driving Reduction, from 2005

GHG Reduction Factors, 2005 to 2020 VMT Per Capita Reduction of 10%				
VMT Only	Population CA Predict	Pavley	LCFS	AB32 Target
.900	1.196	.825	.900	.870

Table 6 Results of Combining Factors to Estimate 2020 GHG Reductions, With a 10% Driving Reduction from 2005

GHG Reductions, Combining Factors, 2005 to 2020, VMT Per Capita Reduction of 10%				
VMT Only	VMT & Population	VMT & Population & Pavley	VMT & Population & Pavley & LCFS	Combination Within AB32? *Less Than .87?*
.900	1.076	.888	.799	Yes

Table 7 Percent Reductions from Combining Factors to Estimate 2020 GHG Reductions, With a 10% Driving Reduction from 2005

Combining 2005 to 2020 GHG % Reductions Starting from a VMT Per Capita Reduction of 10%				
VMT Only	VMT & Population	VMT & Population & Pavley	VMT & Population & Pavley & LCFS	Combination Within AB32? *Below -13%*
-10%	8%	-11%	-20%	Yes

It is therefore shown that both "Pavley" and the LCFS are needed to meet the AB 32 standards by 2020. This is true for both the -5% and the -10% reductions in VMT.

2.3 Conclusions Regarding 2020 Reductions, AB 32, & Reductions for Safety

For the 5% reduction, the following conclusions can be drawn. Both "Pavley" and the LCFS are needed to meet the AB 32 reduction. Assuming that both "Pavley" and the LCFS stay on track out to the year of 2020; there is still only a 2.6% margin, with respect to the AB 32 reductions. Since AB 32 is inadequate for the industrialized countries, when compared to the world-wide reductions needed to protect humanity from a catastrophic climate destabilization, the proposed reduction of 5% should probably be viewed as morally indefensible.

For the 10% reduction, the following conclusions can be drawn. Both "Pavley" and the LCFS are still needed to meet the AB 32 reduction. Assuming that both "Pavley" and the LCFS stay on track out to the year of 2020; there is a 7.1% margin, with respect to the AB 32 reduction. Since AB 32 is inadequate for the industrialized countries, when compared to the world-wide reductions needed to protect humanity from a catastrophic climate destabilization, the proposed reduction of 10% might still be morally indefensible.

3.0 Evaluation of CARB Draft Targets for 2035

Only the largest value shown, -19%, will be considered, for reasons that will become obvious, if it is not already obvious to the reader. Table 14 shows the proposed targets for the four largest MPOs in California.

Table 14 Four Largest MPOs
Placeholder Greenhouse Gas Reduction Targets for 2035
(Percent Reduction in Per Capita Emissions Relative to 2005)*

MPO Regions	2035 Placeholder Targets
Metropolitan Transportation Commission (MTC)	3-12%
Sacramento Area Council of Governments (SACOG)	13-17%
San Diego Association of Governments (SANDAG)	5-19%
Southern California Association of Governments (SCAG)	3-12%

* Percent reduction numbers do not include emission reductions expected from Pavley Greenhouse Gas Vehicle Standards and Low Carbon Fuel Standard measures.

For 2035 it is necessary to extrapolate the Governor's Executive Order target, which is Figure 1's yellow line, out to year 2035. It is 0.87 in 2020 and it is 0.64 in 2030. Therefore, in year 2035, it will be

$$0.64 + [(.64 - .87)/(2030-2020)] * (2035-2030) = 0.525$$

Likewise, for 2035 it is necessary to extrapolate "Pavley", the green line, out to year 2035. It is 0.82 in 2020 and it is 0.73 in 2030. Therefore, in year 2035 it will be

$$0.73 + [(.73 - .82)/(2030-2020)] * (2035-2030) = 0.685$$

For the calculation, the following factors apply:

1. 0.81, for the per capita reduction in driving, using the 19% reduction from Table 14;
2. 1.402, for the 40.2% projected increase in population (based on California Dept. of Finance official projections)[3];
3. 0.685, from the above-computed extrapolation of the green "Pavley" line of Figure 1;
4. 0.90, for the reduction in low-carbon fuel standard (LCFS), as shown on the purple line of Figure 1.

Multiplying these four factors together results in a factor of (.81)*(1.402)*(.685)*(.90) = 0.700.

This is a 30.0% reduction, which is not even close to the required AB 32 reduction value of 47.5%, from the above-computed extrapolation of the Governor's Executive Order target fraction of .525.

This is a significant failure and indicates that neither the MPOs nor CARB are taking their climate crisis responsibilities seriously. It should be noted that although there is a chance that the Pavley reduction slope could be increased by a "Pavley 2" slope, it is also true that a poor economy and/or pure political "push back" could result in the current Pavley reduction slope becoming unobtainable sometime before 2035, such that the projected Pavley reduction factor of .685 would not be obtained. The forecasted "Pavley" reduction target depends on a certain level of fleet turnover, which has recently slowed down because of the recession. Thus we may not be able to depend on "Pavley".

Tables 15, 16, and 17 provide a complete picture of what the various factors are and how they fail to achieve the AB 32 reductions.

Table 15 Factors Used to Estimate 2035 GHG Reduction from 2005, With a 19% Driving Reduction, from 2005

GHG Reduction Factors, 2005 to 2035 VMT Per Capita Reduction of 19%				
VMT Only	Population CA Predict	Pavley	LCFS	AB32 Target
.810	1.402	.685	.900	.525

[3] State of California, Department of Finance, *P-2 Short-term Statewide Population Projections 1995-2015*, Sacramento, California, May 2010 and State of California, Department of Finance, Population Projections for California and Its Counties 2000-2050, by Age, Gender and Race/Ethnicity, Sacramento, California, July 2007 (http://www.dof.ca.gov/research/demographic/reports/view.php).

Table 16 Results of Combining Factors to Estimate 2035 GHG Reductions, With a 19% Driving Reduction from 2005

GHG Reductions, Combining Factors, 2005 to 2035, VMT Per Capita Reduction of 19%				
VMT Only	VMT & Population	VMT & Population & Pavley	VMT & Population & Pavley & LCFS	Combination Within AB32? *Less Than .525?*
.810	1.136	.778	.700	No

Table 17 Percent Reductions from Combining Factors to Estimate 2035 GHG Reductions, With a 19% Driving Reduction from 2005

Combining 2005 to 2035 GHG % Reductions Starting from a VMT Per Capita Reduction of 19%				
VMT Only	VMT & Population	VMT & Population & Pavley	VMT & Population & Pavley & LCFS	Combination Within AB32? *Below -47.5%?*
-19.0%	13.6%	-22.2%	-30.0%	No

4.0 What 2035 Reduction Will Meet "AB 32" (Governor's Executive Order) Reductions

The EXCEL spreadsheets that produced Tables 15, 16, and 17 were copied onto another sheet and then the VMT Per Capita Reduction value was increased by an integer amount until the net 2035 result was within the AB 32 target value. The result was -40 percent. The effect of the various factors is shown in Tables 18, 19, and 20.

Table 18 Factors Used to Estimate 2035 GHG Reduction from 2005, With a 40% Driving Reduction, from 2005

GHG Reduction Factors, 2005 to 2035 VMT Per Capita Reduction of 40%				
VMT Only	Population CA Predict	Pavley	LCFS	AB32 Target
.600	1.402	.685	.900	.525

5.0 A Correct and Reasonable, Science-Driven "AB 32" Reduction

The Section 4 result of a 40% per-capita VMT reduction, required to meet the AB 32 target for year 2035, is a reasonable starting point. Given the uncertainty of the Pavley reduction by 2035 and the fact that climate scientists have shown that we need large reductions soon and need to be essentially off fossil fuels by 2050, a more reasonable reduction value for 2035 is a 50% reduction.

Results from this assertion are shown in Tables 21, 22, and 23.

Table 19 Results of Combining Factors to Estimate 2035 GHG Reductions, With a 40% Driving Reduction from 2005

GHG Reductions, Combining Factors, 2005 to 2035, VMT Per Capita Reduction of 40%				
VMT Only	VMT & Population	VMT & Population & Pavley	VMT & Population & Pavley & LCFS	Combination Within AB32? *Less Than .525?*
.600	.841	.576	.519	Yes

Table 20 Percent Reductions from Combining Factors to Estimate 2035 GHG Reductions, With a 40% Driving Reduction from 2005

Combining 2005 to 2035 GHG % Reductions Starting from a VMT Per Capita Reduction of 40%				
VMT Only	VMT & Population	VMT & Population & Pavley	VMT & Population & Pavley & LCFS	Combination Within AB32? *Below -47.5%?*
-40.0%	-15.9%	-42.4%	-48.1%	Yes

Table 21 Factors Used to Estimate 2035 GHG Reduction from 2005, With a 50% Driving Reduction, from 2005

GHG Reduction Factors, 2005 to 2035 VMT Per Capita Reduction of 50%				
VMT Only	Population CA Predict	Pavley	LCFS	AB32 Target
.500	1.402	.685	.900	.525

Table 22 Results of Combining Factors to Estimate 2035 GHG Reductions, With a 50% Driving Reduction from 2005

GHG Reductions, Combining Factors, 2005 to 2035, VMT Per Capita Reduction of 50%				
VMT Only	VMT & Population	VMT & Population & Pavley	VMT & Population & Pavley & LCFS	Combination Within AB32? *Less Than .525?*
.500	.701	.480	.432	Yes

Table 23 Percent Reductions from Combining Factors to Estimate 2035 GHG Reductions, With a 50% Driving Reduction from 2005

Combining 2005 to 2035 GHG % Reductions Starting from a VMT Per Capita Reduction of 50%				
VMT Only	VMT & Population	VMT & Population & Pavley	VMT & Population & Pavley & LCFS	Combination Within AB32? *Below -47.5%?*
-50.0%	-29.9%	-52.0%	-56.8%	Yes

The percent margin below the AB 32 target is 9.3% (56.8-47.5). This corresponds to being nearly off carbon fuels by 2050, which is needed.

6.0 SCS Strategies that Can Do the Job

The MPO calculations and their implied requests, for no more than a 10% reduction in per capita driving by 2020 and no more than 19% by 2035, indicates that the MPOs are not seriously considering the root causes of the car-oriented California lifestyle that are caused by widespread government policies. SANDAG has never allowed such an in-depth process, let alone authorized it.

The exception is zoning to reduce sprawl. Incremental improvements in zoning, referred to as support for "smart growth", are taking place. Over time and to the extent the economy supports growth, this will yield driving reductions. However, fundamental changes in parking policy and road-use pricing, which are both related to the issue of congestion and freeway expansion, are never discussed in any depth. This oversight is reducing our chances of getting the strategies that will bring down rates of driving on the scale that is needed, for California to fully live up to its global warming responsibility and in a way that is equitable to all.

6.1 Road Use Fee Pricing Systems

A San Diego County newspaper, the North County Times (NCT), in a February 9, 2009 article, reported that the Chair of the California Transportation Commission (CTC) wrote that the gas tax currently contributes nothing to road construction **and only provides half of the money needed annually for repairs:**
http://www.nctimes.com/articles/2009/02/09/news/columnists/downey/z8591536f3e7332da882575510076fa1e.txt.

A Canadian company, *Skymeter*, is designing and installing a variable and comprehensive road-use fee pricing system, in the Netherlands by 2014 and in Denmark by 2016. The charge per mile will vary by such things as model of car, road, time of day, and congestion level. In 2005, the gas tax in the Netherlands was equivalent to $3.50 per gallon. However, with the advent of the new system, the Netherlands will eliminate the gas tax. Nevertheless, the Netherlands estimates that the GHG from driving will drop by 10%. Note that such a system could easily charge a price of zero cents per mile for a low-income driver. Our current system of a gas tax has no such capability. *Skymeter* will program the navigational-unit-like box so that no travel information is stored, to protect driver privacy.

On July 11th 2009, the California Nevada Regional Conservation Committee (CNRCC) of the Sierra Club California passed a resolution supporting a "Comprehensive Road Use Fee Pricing System". This paper can be provided upon request.

The CNRCC resolution is supported by a 10-Page "Reference Document" that outlines the principles and conditions of a road-use fee pricing system that would conform to Sierra Club values. It has an example of a road-use fee structure that supports the listed principles. Useful background information is also provided.

On November 14th, the Environmental Caucus of the California Democratic Party (CDP) passed a 1-page resolution in support of a "Comprehensive Road-Use Fee Pricing System". This one-page resolution contains the following words.

> **THEREFORE, BE IT RESOLVED,** that the California Democratic Party***** supports a state-funded study of a design of a road-use fee pricing system that (1) would pay for all road-use costs including the environmental and health costs caused by driving, (2) could still include a fuel tax or fee, (3) would mitigate impacts on low-income users and protect privacy, (4) would include congestion pricing when that technology becomes feasible, (5) would keep the per-mile price incentive to drive energy-efficient cars at least as large as it is with today's fuel excise tax, and (6) could be accompanied by tax reductions sized to achieve either net-revenue neutrality or near-net-revenue neutrality.
>
> ***Not true because the resolution failed in the CDP Resolution Committee**

The Nevada Department of Transportation is taking comments on a proposal for a VMT fee to replace their gas tax, as shown at http://www.vmtfeenv.com/.

The 2010 Platform of the California Democratic Party (at http://www.cadem.org/atf/cf/%7BBF9D7366-E5A7-41C3-8E3F-E06FB835FCCE%7D/Platform2010CDP_FINAL_June.pdf), inspired in part by the 1-page resolution identified above, contains that following bullet:

- Work for equitable and environmentally sound road and parking use

Using sales taxes, property taxes, income taxes, and other general taxes pay for services that make it artificially cheap to drive is unjust to citizens that drive less than average. There is no reason why government should adopt policies that increase driving and economically discriminate against those that telecommute, walk, bike, car pool, or use transit; the unconstitutionality of the current system is plain to see.

Considering all of this information, CARB has a responsibility to notify the Governor and our legislative leaders that our state has good reasons to implement a comprehensive and variable road-use fee pricing system. There is probably no reason to reinvent the wheel. The *Skymeter* system would work fine here in California. The Sierra Club California analysis can be considered to ensure an implementation that is both equitable to all and environmentally sound.

6.2 Unbundling the Cost of Car Parking

For the vast majority of destinations in California, the cost of car parking is hidden within other costs. This has serious consequences. For example, at most places of employment, parking costs reduce the wages that can be paid to all the employees, even those that never use the parking. Similarly, at many apartment complexes, bundled parking costs increase the rent and this is true, even for families that do not own a car. Bundled parking costs routinely increase the costs of goods, such as groceries, for all customers. Again, this is even true for those that do not drive. Since governments require businesses to provide minimum levels of parking, they are involved in this economic discrimination towards those that drive less.

Driving less is, to some degree, a lifestyle choice. Since government has no valid reason to encourage driving, the lifestyle choice of less driving deserves constitutional, or at least legal, protection from any practices that discriminate against it, economically. So far, this agency (CARB) has not taken an active role in pushing vmt and parking pricing.

On June 22nd (2010), I presented a paper on how parking could be operated to unbundle parking costs in a way that supports the sharing of parking. This was at the 101st Conference and Exhibit of the Air and Waste Management Association, in Calgary, Canada. The session, *Sustainable Land Use and Transportation*, included my paper, *A Plan to Efficiently and Conveniently Unbundle Car Parking Costs*, which was well received.

My paper is therefore both peer reviewed and published. I would be pleased to present this paper to the staff of CARB, in the hopes that CARB could bring about equitable and environmentally-sound parking policies to California.

The following points, taken from the paper, apply.

- Vehicle miles traveled (VMT) are a major cause of global warming and pollution.
- California's Metropolitan Planning Organizations (MPOs) will need to adopt strategies that reduce vehicle miles traveled (VMT), in order to meet SB375 GHG reduction targets, to be issued by the California Air Resources Board in late 2010, for years 2020 and 2035.
- The appropriate pricing of parking is one of the least costly tools documented to reduce VMT.
- New technologies, such as sensors feeding computer-generated billing, offer the potential to efficiently bill drivers for parking and alert law enforcement of trespassers.
- Reformed parking policies can increase fairness, so that, for example, people who use transit or walk do not have to pay higher prices or suffer reduced wages, due to parking.
- Methods to unbundle parking cost are inefficient unless they support the spontaneous sharing of parking spaces. Shared parking with unbundled cost would ultimately allow cities to require significantly less parking.
- Typical systems of timed parking and metered parking are far from ideal. Parking has no automated record keeping, so it is difficult to know where there is too much or too little.
- Good policies will eventually let cities turn parking minimums into parking maximums.

Less land and resources devoted to parking will support mixed use and make "smart growth" more economically viable. It should therefore be a key ingredient supporting the MPO's stated desire to foster "smart" growth, where "smart" should be defined as "less VMT".

Here is a copy of the abstract of the paper.

> The *Introduction* shows documented driving reductions due to the pricing of parking. It notes that although the benefits of priced and shared parking are known, such parking has not been widely implemented, due to various concerns. It states that a solution, called "*Intelligent Parking,"* will overcome some of these concerns, because it is easy to use and naturally transparent. It asserts that this description will support a "Request for Proposal" (RFP) process. Eight background information items are provided, including how priced parking would help California achieve greenhouse gas reduction targets. A story demonstrates some of the key features of *Intelligent Parking*. Arguments for less parking, shared parking, and priced parking are made. Barriers to progress are identified. The fair pricing of parking is described. New ways to characterize transportation demand management are presented. Seven goals of *Intelligent Parking* are listed. Eleven definitions and concepts, that together define *Intelligent Parking*, are described. This includes a method to compute a baseline price of parking and how to adjust that price instantaneously to keep the vacancy above 15% ("Congestion Pricing"). An implementation strategy is described.

This abstract aroused enough interest among those responsible for A&WMA's *Sustainable Land Use and Parking* session that they requested that I submit a manuscript, which was ultimately selected to become part of the written Conference Proceedings and for presentation. I hope that it will similarly arouse the interest in the CARB Board and staff. CARB needs to consider working to execute the implementation strategy described in *A Plan to Efficiently and Conveniently Unbundle Car Parking Costs*. I would be honored to help in any way possible.

6.3 SANDAG Board's Failures Regarding Climate Change

SANDAG's 2007 RTP, "RTP2030", called for increasing the number of freeway lanes by 38%. This would be in a region that already had one of the highest VMT-per-capita metrics in the state. SANDAG also supported a sales tax measure, "TRANSNET", that was advertised as one that would spend two-thirds of its money on roads and one-third on transit. However, after it was passed, SANDAG defined all HOV lanes to be "transit", thereby significantly reducing the fraction of money spent on true transit.

Out of a $57 billion dollar budget for RTP2030, SANDAG budgeted about 1% for mitigation. This mitigation is split evenly between "smart growth" incentive money and a *Regional Bicycle Plan*. They have published a *Smart Growth Incentive Plan*, a *Smart Growth Design Guideline*, as well as the *Regional Bicycle Plan*. SANDAG has an excellent staff. However, the Board does not provide helpful direction. One obvious direction needed was to adopt a metric of reducing VMT to decide what "smart growth" should get funding, what "smart growth" design guidelines should be adopted, and what bicycle programs should be funded. They were asked repeatedly to put citizen comments, directed toward the early drafts of these documents, on line, to be viewed by all. Not doing this made it easy for the staff to ignore significant public comment and to instead follow the direction provided by the Board, which seemed to think that bike money should go mostly for trails and smart-growth money should go toward beautification projects in areas deemed suitable for smart growth. If less driving were used as a criteria for spending money, then funding the League of American Bicyclist's class on how to ride a bike in traffic and the development of equitable and environmentally sound parking policy (good enough to be politically acceptable), would have been a large part of the spending. Instead, bicycle education and car-parking policies were marginalized to the point of being essentially unfunded.

6.4 Putting a Stop to Freeway Expansion

One of the most powerful strategies to reduce GHG would be to stop expanding freeways. Instead of costing money, it would generate money. It is well understood that the metric of freeway-lane miles per square mile of developed land increases an area's average car-trip length and thereby increases VMTs. SANDAG is ignoring this fact and this is probably one of the primary reasons that its 2035 GHG Reduction Target is unacceptably small. When the SANDAG TRANSNET tax was passed, few voters understood that we were threatened with a climate catastrophe and that our responsibility was to drive significantly less. Given our current understanding, SANDAG has a responsibility to go back to voters with a ballot measure that reconfigures TRANSNET to be 100% for transit, bicycles, and pedestrians.

The current freeway-widening project being considered is to widen I-5 from 8 to either 12 or 14 lanes, from La Jolla to Camp Pendleton, at a cost of over $4 billion dollars. The DEIR was released in early July. Caltrans is holding public meetings, where no member of the public is allowed to speak publicly. It sent postcard notifications to those living along the route. However, instead of honestly notifying the recipients of the radical, land-consuming nature of the proposal, these postcards only refer to a "managed lane project". Who would be worried about some plan to manage lanes? Nowhere on the postcard is there any information suggesting a wider freeway, a taking of land, a reducing of property-tax rolls, an increase in noise, an increase in driving, an

increase in air pollution, an increase in GHG or even that there is any kind of construction project being proposed.

7.0 Conclusions

Targets will have to be more stringent than AB 32 targets if we are going to fulfill our world leadership responsibility, as required, to give the world a chance at avoiding climate destabilization. The 2020 Target of -10% (per-capita from VMT) can only result in an SB-375 AB 32 reduction if both "Pavley" and the LCFS factors are used. The 2035 reduction target of -19% would have to instead be -40% to just meet the AB 32 reductions, and this is assuming the Pavley reductions continue on the "Pavley 1" trajectory all the way to 2035. This assumption about "Pavley" may be overly optimistic. The science-supported 2035 reduction is -50%.

The best, largely overlooked strategies to reduce VMT are a comprehensive and variable road use fee pricing system, as is being installed by *Skymeter*; unbundling the cost of car parking; and putting a stop to all freeway expansions. I would like to discuss further a state-wide strategy to unbundle the cost of car parking.

Sincerely yours,

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