



ENVIRONMENTAL DEFENSE

finding the ways that work

Attachment 1: Description of Emissions Reduction Measure Form

Please fill out one form for each emission reduction measure. See instructions on attachment 2.

Title: Develop a mix of measures to reduce the GHG's from the transportation sector and to reduce overall vehicle use.

Type of Measure (check all that apply):

- Direct regulation
- Monetary Incentive
- Voluntary
- Other Describe: State Spending
- Market-based compliance: Future Cap & Trade Sector
- Non-monetary incentive
- Alternative Compliance Mechanism

Responsible Agency: California Air Resources Board and/or the state agency identified in the measure. Where no specific agency is listed, CARB is the responsible agency.

Sector:

- Transportation
- Other Industrial
- Agriculture
- Sequestration
- Electricity Generation
- Refineries
- Cement
- Other Describe:

2020 Baseline Emissions assumed (MMT CO2 eq): See below.

Percent reduction in 2020: See below.

Cost effectiveness (\$/metric ton CO2E) in 2020: See below.

Description:

The Transportation Sector currently produces 40% of California's GHGs and mobile sources produce more than two-thirds of the state's air pollution. About a quarter of the mobile source emissions come from cars and light-duty trucks. The most significant criteria pollutants emitted from vehicles are oxides of nitrogen (NOx), reactive organic gases (ROG) and particulate matter. ROG and NOx are key precursors to ground-level ozone formation, which is linked to stunting lung development in children, causing and aggravating asthma and other lung diseases, and aggravating heart ailments. Through reaction with ammonia, NOx forms ammonium nitrate and this fine particulate matter is associated with a range of heart and lung ailments. Additionally, NOx leads to acid deposition and impairment of visibility.

California's land use patterns increase GHG and criteria pollutant emissions from the Transportation Sector. We traditionally develop low-density communities where people have difficulty using alternative forms of transportation to reach their destinations. This pattern results in more emissions from the Transportation Sector than would result from denser development and exacerbates traffic congestion. Additionally, it reduces the opportunities for walking for exercise benefits, when most Americans are overweight. Many of the measures in this proposal are aimed at developing California so that they people can become less reliant on cars.

The implementation of AB 32 represents a great opportunity to reduce California's GHG emissions and Californians' exposure to other pollutants associated with transportation. The following programs have to potential to produce significant reductions of GHG and criteria pollutant emissions. CARB should provide a cohesive framework for encouraging these programs, many of which would be implemented by other state agencies or local government.

Market-Based Compliance Mechanisms

Cap and Trade

The Market Advisory Committee (MAC) report recommends including the Transportation Sector in the cap and trade system because it broadens the scope of the regulation, leading to lower total costs of achieving reductions targets and greater market liquidity. However, the MAC also identified several institutional obstacles to including transportation fuels in a cap and trade, and suggested that it may be appropriate to exclude them from the first iteration of the cap and trade program, with an eye towards expanding the cap and trade program to cover transportation fuels in the future. Environmental Defense strongly supports including transportation fuels in the cap and trade program. We believe that it is feasible to do so in the first iteration of the program, and would support such an action. We also recognize that it may be advisable to wait until the regulations for the Low Carbon Fuel Standard (LCFS) are more fully developed in order to better integrate the cap and trade with the LCFS regulations.

Monetary Incentives

Road Pricing/Congestion Pricing

Pricing that is appropriately set to take into account environmental costs of a consumer's travel behavior has been shown to motivate travel choices that pollute less. This is especially true when revenues from pricing are used to fund mass transit as an alternative to single-passenger automobile use. In Sweden and London, for instance, cordon pricing has proven to reduce vehicle miles traveled (VMT) and traffic within designated portions of those cities. Closer to home, on the I-15 in San Diego County, installing tolled lanes whose price varies with congestion rates, and whose revenues are used to fund express buses, have simultaneously relieved congestion and shifted consumers to less-polluting travel modes. Studies of the success of such

pricing programs indicate that increased ridership of public transportation and increased walking and biking have resulted, thus leading to overall transportation system efficiency improvement.¹

CARB and CalTrans, working in collaboration, should identify high-polluting corridors or congested city centers where appropriate road pricing coupled with increased transit services will likely result in significant GHG reductions. CalTrans should identify any legal barriers to implementing road pricing in these identified areas that can be resolved through legislation. The two agencies should prepare and distribute guidance on road-pricing strategies to local transportation planning agencies, and give preference in distribution of public transportation dollars to those projects that include pollution-reducing pricing strategies. For example, the San Francisco County Transportation Authority is actively developing a congestion pricing scheme for downtown San Francisco.

Pay as You Drive Pricing

Pay-As-You-Drive (PAYD) pricing (also called Distance-Based and Mileage-Based pricing) is a system that connects vehicle insurance, registration, taxes or leasing fees to the annual mileage driven. It helps ensure that each driver pays the true cost of driving, and this overt price signal provides an incentive for drivers to reduce vehicle miles traveled. Development of technologies that allow electronic recording of vehicle miles traveled, and successful use of those technologies around the world, make PAYD feasible. Todd Litman of the Victoria Transport Policy Institute indicates that, in California, a distance-based insurance fee (or another per-mile fee) of \$0.01 per mile would reduce driving by 2.3%, a fee of \$0.05 per mile by 10.7%, and a fee of \$0.10 per mile by nearly 20%.²

The Business, Transportation & Housing Agency, including CalTrans, should work with the California Energy Commission to develop a PAYD system.

Parking Management

Free or inexpensive parking provides an incentive for vehicle owners to drive rather than use other, less polluting forms of transportation. Pricing parking to better reflect its true environmental costs is an effective way to reduce single-passenger automobile travel, especially when pricing is coupled with incentives to use less-polluting forms of transportation. Effective parking management strategies include parking cash-out in which employers provide employees with the choice of cash or a transit pass instead of a free parking space; unbundling parking from building or office leases; reserving the most desirable parking spaces for carpoolers, alternatively fueled vehicles, or bicycles; charging for all on-street parking; consistent and regular parking enforcement; parking space requirements in local parking codes that are adjusted to encourage travel behavior that reduces pollution. Appropriate parking management can encourage people to use alternative transportation and can generate additional revenue for mass transit operation.

California has had a limited parking cash out law since 1992. CARB should seek legislation that would broaden the parking cash out law to a wider range of employers and conditions and thus capture greater participation and GHG reductions.

¹ "Transport's Role in Sustaining the UK's Productivity and Competitiveness - The Case For Action: Sir Rod Eddington's advice to Government," December 2006, United Kingdom Department for Transport <http://www.dft.gov.uk/162259/187604/206711/executivesummary>

² Litman, "Distance-Base Charges; a Practical Strategy for More Optimal Vehicle Pricing," January 1999.

Feebates

Feebates create a market-based incentive for private car buyers to purchase vehicles that are more fuel efficient. A feebate system provides a rebate or levies a fee on new vehicle purchases based on the vehicle's fuel efficiency. Buyers of new cars, whose fuel efficiency exceeds a certain standard, or 'pivot point,' receive rebates that reduce the sticker price, while the converse is true for buyers of new cars with lower fuel efficiency.

Feebates can either cover the vehicle fleet as a whole or can be 'attribute based' (separating vehicles into different categories based on their interior volume or footprint). Attribute-based systems do not distort consumer choice and do not favor automakers that primarily build and sell vehicles in smaller and more fuel efficient classes. CARB should determine which program best serves the needs of California and seek legislation to implement the most appropriate program.

Location Efficient Mortgages

Location Efficient Mortgages (or Green Mortgages) provide discounted mortgages to people who buy homes in compact, energy efficient, mixed-use communities which are serviced by public transportation. The discount is based on the lender's recognition that living in these types of communities lessens the homebuyer's transportation and energy costs, increasing disposable income. Green mortgage programs must be integrated into a comprehensive location efficiency strategy for new and existing housing in order to achieve effective emissions reductions. The Business, Transportation and Housing Agency, in collaboration with CARB, should develop a program to identify communities and regions in the state where LEMs could be used most effectively to reduce GHG emissions, and then link lenders to homebuyers in those targeted communities.

Tailored Mass Transit

Policies to improve mass transit and encourage people to use multiple passenger transportation systems decrease overall fuel use by improving alternatives to driving, and are thus an obvious and necessary approach to reduce greenhouse gases from the transportation sector. Tailored mass transit must be a key component of California's transportation policies if the state is to achieve its AB 32 goals.

Tailored mass transit recognizes the diversity of mass transit opportunities and markets and is more properly fitted to expand transit use. It neither assumes that one size or type of mass transit vehicle will be suitable for all travelers, nor does it assume that there is any socioeconomic group who will not benefit from and use mass transit. Tailored mass transit assumes public transit can be attractive to everyone.

Tailored mass transit requires statewide and local investment in multiple transit approaches—Bus Rapid Transit, car sharing services, shuttle buses, vanpools, jitney services--and transit policies designed to help decrease passenger waiting times and increase convenience. These policies include lowering fares at peak travel times, improving user information, improving transit marketing programs, improving transit security, and providing special services such as commuter express buses and special event shuttles. These programs are all aided by increasing and dedicating spending for mass transit improvements and eliminating state constitutional restrictions that bar or limit use of highway user fees and gas taxes to pay for transit and other transportation modes.

Individualized transportation marketing, as demonstrated by the International Association of Public Transport, can play a key role in effective tailored mass transit. Individualized marketing is a dialogue-based technique developed by the company Socialdata. Marketers interview individuals about their travel habits and daily activities and then help identify opportunities for those individuals to use alternatives to automobiles. When this marketing approach was tested in 45 projects in 13 European countries, significant mode-shifting to less polluting transportation occurred. Where it has been used, individualized marketing has yielded 8 percent to 14 percent reductions in car use among participants.

The Business, Transportation and Housing Agency, in collaboration with CARB, should identify areas within the state that produce the greatest emissions of GHGs from transportation. These agencies should then work with the legislature and local agencies to develop funding and strategies to implement tailored mass transit in those targeted areas.

Safer, Better and More Routes for Bikes and Pedestrians

Policies aimed at improving walking and cycling opportunities induce people to use these low-impact transportation modes. A complete streets program includes policies that require planners and engineers to design and build streets that serve all users, not just those who travel by car. Increasing the potential for citizens to walk and cycle requires improved and increased facilities (sidewalks, crosswalks, paths and bicycle parking), traffic calming, shortcuts, street scaping, encouragement programs, and more mixed land use (so more activities are within walking distance). The Building, Transportation and Housing Agency, working with local planning and transportation agencies, should develop a statewide “complete streets” program and work to fund and implement that program.

State and Local Tax Incentives

State and local tax programs can either encourage or discourage choices that reduce greenhouse gases. Tax incentives that encourage choices that reduce GHGs include: 1) tax incentives for businesses that provide transit benefits, 2) 'Smart Location/Development' tax credit for developers and/or homebuyers, 3) tax credit for households that do not own an automobile, and 4) tax credit/other tax incentives for green buildings and development. The Franchise Tax Board, the Board of Equalization, and the Department of Finance, in collaboration with CARB, should identify a list of tax incentives that would encourage GHG reductions.

Direct Regulation

Requiring Use of Up-to-Date Transportation Demand Models

Transportation demand modeling (TDM) has been used for many years to predict effects of new development on roadway congestion and mass transit ridership. However, predictive models in use today by many metropolitan planning organizations are out of date; many planners may be failing to accurately account for the benefits of urban infill and smart growth and may be discounting development strategies with recognized benefits and VMT reduction potential. Potential improvements in transportation demand models range from quick fixes that involve simple computer program modifications to complete modeling overhauls. Effective improvements must be made to determine the best local choices for reducing GHGs.

CalTrans and/or the Business, Transportation and Housing Agency should develop and work for passage of legislation that would require local transportation agencies to use up-to-date models and/or improve existing models. Those agencies should also improve their own modeling capabilities and be prepared to train local agencies in those improved TDMs.

Monetary Incentives or Direct Regulation

Freight Management and Mode Shifting

Freight Transport Management involves strategies to increase the efficiency of freight and commercial transport. These strategies involve “mode shifting” (changing distribution practices to involve more resource efficient and potentially less polluting modes like rail and marine), changing freight movement times to periods of decreased traffic congestion (night-time shipping), improving emissions profiles of existing goods movement vehicles, and locating industrial centers to improve distribution efficiency. This reduces the direct emissions from transport and from other vehicles by improving traffic flow. CARB should work with local agencies, CalTrans and the Business, Transportation and Housing Agency to promptly implement these strategies at and near the state’s ports, airports and distribution centers to reduce goods movement GHG impacts.

State Spending

Environmental Performance in Transportation Spending

All public spending on transportation projects should incorporate environmental performance standards and give preference to projects meeting them. Strategies include: 1) allocating the maximum amount of funding to projects that reduce VMT, 2) giving incentives for local government to pursue preferred growth scenarios, 3) giving grants to programs to fund pedestrian, bike, and transit improvement, 4) targeting high performance corridors, 5) directing growth by designating areas with existing infrastructure as “priority funding areas” and making areas without existing infrastructure ineligible for state infrastructure spending, and 6) requiring all projects funded with tax-exempt bonds to be climate neutral. It is essential that the state

spending be coordinated between state agencies to enforce environmental performance spending so that they give the same signals to local jurisdictions.

An environmental performance spending program should include green transportation construction plans. The California Transportation Commission distributes money (state and federal) for public transportation projects, including roads and bridges. It establishes guidelines for the regional agencies to follow in writing their transportation system plans, from which projects are chosen for funding. The CTC guidelines should include overt policies regional transportation agencies must adopt to reduce, mitigate, and monitor GHGs from each transportation project.

Funding for GHG-Reducing Infrastructure Improvements

Funding is required to build infrastructure that reduces GHGs. Examples include requiring dedicated funds for repair and reconstruction of existing infrastructure and giving funds to support development of public transit, pedestrian, and bike infrastructure. These funds, like all state funds, should be spent in a way that takes environmental performance into account. The CTC should work with local agencies to develop a GHG reduction plan linked to infrastructure improvements that will produce the greatest reductions, and then implement that plan, giving funding preference to the projects producing the greatest reduction.

Voluntary

Public Information

Educating people about how they can reduce their GHG emissions, including from transportation, provides important benefits. It encourages people to drive less and may even encourage them to buy cars with lower emissions. It should also alert them to GHG-reduction programs that exist in their communities, such as feebates and location efficient mortgages. This information should be given to people on state and local webpages and general advertising media. The Department of Finance, working with other appropriate state agencies, should identify new, continuous funding for a public service advertising campaign, including television advertising, about GHG emissions and solutions.

Promoting Telecommuting

Telecommuting policies allow employees to work from satellite locations. By not driving in to work, the employees reduce overall VMT and fuel use. Studies at companies such as British Telecom and AT & T have found that telecommuting may also improve employee productivity and retention. The Business, Transportation and Housing Agency should develop a policy that requires companies to offer telecommuting options to employees.

Emission reduction calculations and assumptions:

These measures will reduce vehicle and energy GHG emissions by encouraging mode shifting, reducing vehicle miles traveled, and guiding smarter spending of private and public

funds. The impact of any particular measure will depend upon the intensity at which it is implemented, the region of the state, the existing built environment, and whether complementary measures are enacted. Until these measures are better defined, we are unable to give emissions reductions estimates. CARB has much greater resources to deal with the complexity of these issues in its calculations.

It is clear that, with 40% of the greenhouse gas emissions coming from transportation, this sector and the integrally related land use sector must be addressed. These measures tend to be interrelated. For example, many land use improvements will result from implementation of the Indirect Source Rule, but require Planning that Works to achieve their greatest effect. Because of the attachment that people have to driving and the existence of an increasingly sprawling built environment, a variety of these measures should be implemented to get the maximum reductions from the transportation sector.

Cost effectiveness calculation and assumptions:

The cost-effectiveness of any particular measure will depend upon the intensity at which it is implemented, the region of the state, the existing built environment, and whether complementary measures are enacted. Until these measures are better defined, we are unable to give emissions reductions estimates. We have given information about existing programs and research in the discussion of the measures.

Implementation barriers and ways to overcome them:

The barriers to implementation vary by measure. Funding for supportive infrastructure and transit projects may be a barrier to building walkable and mass transit-oriented communities. These barriers are dealt with in “Environmental Performance in Transportation Spending,” “Funding for GHG-Reducing Infrastructure Improvements,” and “Tailored Mass Transit.” Existing local planning and zoning that prevent higher-density developments and require certain building specifications are potential barriers to smart-growth measures. Local zoning and planning codes should allow or require mixed use and higher densities in appropriate areas, a variety of housing types, “complete” streets, areas where growth cannot occur, design standards for sidewalks etc. Additionally, grants, tools, incentives or requirements should be put into place for local governments to use up-to-date planning practices. The Business, Transportation and Housing Agency, in collaboration with the Department of Planning and Research, should conduct a review of local zoning and planning codes, identify those that can restrict efforts to reduce GHGs, and develop model codes and encourage their adoption.

Potential impacts on criteria pollutants:

Many of these measures will reduce VMT and reduce driving at peak times, reducing Californian’s exposure to criteria pollutants. Like GHGs, criteria pollutants decrease with

reductions in VMT and idling time, therefore implementing these measures will improve public and environmental health while reducing California's GHG emissions.

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