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THIS DOCUMENT CONTAINS TLU-1 THRU TLU-5, AND TLU-14 THRU TLU-16. OTHER OPTIONS WILL BE POSTED IN SEPARATE DOCUMENTS

Table 3.
Transportation and Land Use Technical Work Group
Summary List of Pending Policy Options

#	Policy Name	2012 GHG Savings ($MMtCO_2e$)	2020 GHG Savings ($MMtCO_2e$)	2007-2020 GHG Savings ($MMtCO_2e$)	Cost-Effectiveness ($/$MtCO_2e$)
TLU-1	State Clean Car Program	0.4	1.9	10.5	-$115
TLU-2	Low Rolling Resistance Tires	0.3	0.3	3.5	-$61
TLU-3	Low-GHG Operation of State Fleet Vehicles	*Not estimated*			
TLU-4	Pay-As-You-Drive Insurance	0.2	0.9	5.0	Zero net cost
TLU-5	Incentive/Disincentive Options Bundle	*Not estimated*			
TLU-6	Alternative Fuels Use [6a] Alternative Fuel Production [6b]	Under review	Under review	Under review	Under review

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#	Policy Name	2012 GHG Savings ($MMtCO_2e$)	2020 GHG Savings ($MMtCO_2e$)	2007-2020 GHG Savings ($MMtCO_2e$)	Cost-Effectiveness ($/$MtCO_2e$)
	VMT Reduction Bundle TLU-7 to TLU-11				
TLU-7	Infill, Brownfield Re-development	1.2	1.3	13.5	In progress
TLU-8	Transit-Oriented Development				
TLU-9	Smart Growth Planning, Modeling, Tools				
TLU-10	Multimodal Transportation Bundle				
TLU-11	Promote LEED for Neighborhood Development				
TLU-12	Targeted Open Space and Croplands Protection	***Analyzed in Agriculture and Forestry TWG (F-1 and A-8)***			
TLU-13	***Diesel Retrofits*** ***Moved to element of TLU-5***				
TLU-14	Truck Stop Electrification/Anti-Idling	0.3	0.5	5.1	$4 at $2.40/gal $-66 at $3.40/gal
TLU-15	Intermodal Freight Initiatives	*In progress*			
TLU-16	Lower Speed Limit for Commercial Trucks	0.14-0.18	0.22-0.30	2.2-3.0	$50 at $2.40/gal $-19 at $3.40/gal

TLU-1 California GHG Emission Standards

Policy Description:

Adopt the State Clean Car Program (also known as the "Pavley" standards or "California GHG emission standards") in order to reduce the net emissions of GHG's from vehicle operation.

Policy Design:

New cars and light trucks in all states must comply with Federal emission standards, and, generally speaking, states have the choice of adopting a stronger set of standards applicable in California. In 2005, California finalized a set of standards that would require reductions of GHG emissions of about 30 percent from new vehicles, phased in from 2009 to 2016, through a variety of means. The standards must still be approved by USEPA, and face a court challenge.

Implementation Mechanisms

Regulatory program beginning with vehicle model year 2011.

Types(s) of GHG Benefit(s):

CO2 reductions

Estimated GHG Savings and Costs Per Ton:

	2012	2020	Units
GHG Emission Savings	0.4	1.9	MMtCO2e
Net Present Value (2007-2020)		-$1,207	$ million
Cumulative Emissions Reductions (2007-2020)		10.5	MMtCO2e
Cost-Effectiveness		-$115	$/tCO2e

- **Data Sources:** CCS, Draft New Mexico Greenhouse Gas Inventory and Reference Case Projections, July 2005; Mary Braun, Tony Dutzik, Jeanne Bassett, A Blueprint For Action: Policy Options to Reduce New Mexico's Contribution to Global Warming, Spring 2006; Elizabeth Ridlington, Tony Dutzik, and Christopher Phelps, Cars and Global Warming: Policy Options to Reduce Connecticut's Global Warming Pollution from Cars and Light Trucks, Spring 2005.

- **Quantification Methods:** The New Mexico PIRG used a model of a light duty vehicle fleet to compare the difference between base case emissions and emissions with fleet penetration over time of vehicles that meet lower GHG emissions standards consistent with California regulations. This model was developed by Elizabeth Ridlington and was used to model emission reductions in Arizona and Connecticut as well as New Mexico. The PIRG model calculated light duty vehicle fuel use and emissions based upon scientifically valid methods. (See discussions in NM PIRG report, pp. 20-22, 49-51 and ConnPIRG report, pp. 27-31.)

CCS compared the PIRG model results to results for New England states and California that were obtained using comparable modeling methods. CCS found that while all three modeling efforts were scientifically valid and comparable, some of the PIRG model assumptions and methods were relatively conservative, while the California and New England modeling results were relatively optimistic. CCS further refined the PIRG model results consistent with a middle range scenario that produced results less conservative than the PIRG results and less optimistic than the California and New England results. While PIRG projected a 13.7% reduction in light duty vehicle emissions with this policy for Arizona, the CCS refinement estimates a 15.5% reduction in emissions for Arizona. CCS applied this same refined percentage reduction in emissions to the CCAG reference case for New Mexico to obtain a net estimated reduction of 1.9 MMTCO2e in 2020.

- **Key Assumptions:** The three modeling efforts have established a generally acceptable scientific method of projecting GHG emissions reductions from this policy. The CCS comparison of the three modeling methods provides some independent professional validation of the models and their results. The key assumption of the emissions reduction projected by CCS is that the most likely scenario for emissions reductions is one that would fall between the more conservative scenario projected by the AZ PIRG model and the more optimistic scenario projected by the California and the New England models.

Key Uncertainties:

Fleet turnover rates for light duty vehicles and future patterns of consumer purchase choices between passenger cars and light duty trucks (i.e. SUVs).

Contributing Issues

Pending

Feasibility Issues:

Light Duty Vehicle GHG emissions standards can be met with existing 'off-the-shelf' automotive technologies that are already in the marketplace.

Status of Group Approval:

Pending.

Level of Group Support:

Pending.

Barriers to Consensus:

Pending.

TLU-2 Low-Rolling Resistance Tires

Policy Description:

Improve the fuel economy of the light duty vehicle (LDV) fleet by setting minimum energy efficiency standards for replacement tires and requiring that greater information about Low-Rolling Resistance (LRR) replacement tires be made available to consumers at the point of sale.

Policy Design:

- **Goal levels:** Require that replacement tires be LRR tires achieving an average 4.5% gain in fuel economy.
- **Timing:** The requirement would begin in 2008.
- **Parties:** Industry

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Implementation Mechanisms

Manufacturers currently use LRR tires on new vehicles, but they are not easily available to consumers as replacement tires. When installing original equipment tires, carmakers use low rolling resistance tires as a way to contribute to meeting the federal automobile fuel economy (CAFÉ) standards. When replacing the original tires, consumers often purchase less efficient tires. Currently, tire manufacturers and retailers are not required to provide information about the fuel efficiency of replacement tires. In addition, there is no current minimum standard for fuel efficiency that all replacement tires must meet. The rolling resistance of the various tires consumers can purchase have significant variations depending on tread design, composition, cross-section geometry, and inflation pressure.

The program would include consideration of the technical feasibility and cost of such a program, the relationship between tire fuel efficiency and tire safety, potential effects upon tire life, and impacts on the potential for tire recycling. In addition, the program would exempt certain classes of tires that sell in low volumes, including specialty and high performance tires.

An appropriate State agency would initiate a fuel efficient tire replacement program. The program could include consumer education, product labeling, and minimum standards elements. These programs would be developed under a rule development process that would incorporate the best scientific information, including the results from tests of tires conducted by the tire manufacturers, the California Energy Commission, and other data reviewed by the National Academy of Sciences.

The minimum standard is likely to be less stringent than the energy efficiency of original tires provided by the automobile manufacturers on new purchase vehicles. Such a regulation would improve the fuel efficiency of the overall LDV fleet, but not necessarily the fuel efficiency of all tires since consumers would still make choices in the marketplace. The replacement tires in the future would be on average more fuel efficient than those historically purchased, but are likely to be on average not as fuel efficient as the tires included as original equipment by the automobile manufacturers.

Related Policies/Programs in place:

In October of 2003, California adopted the world's first fuel-efficient replacement tire law. AB 844 is a "first-of-its-kind" law requiring energy efficient tires. AB 844 directed the California Energy Commission (CEC) to develop a State Efficient Tire Program. Specifically, AB 844 requires the CEC to: (1) develop a consumer education program, (2) require that retailers provide labeling information to consumers at the point of sale, and (3) promulgate through a rule development process a minimum standard for the fuel efficiency of replacement tires sold. The California rule development process is scheduled to begin in January 2007.

Estimated GHG Savings and Costs Per Ton:

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Scenario2: 4.5% reduction in gasoline consumption from LRR replacement tires

	2012	2020	Units
GHG Emission Savings	under review	0.6	MMtCO2e
Net Present Value (2006-2020)		-$506	$ million
Cumulative Emissions Reductions (2006-2020)		6.3	MMtCO2e
Cost-Effectiveness		-$80	$/tCO2e

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- **Data Sources:** Studies by National Research Council, California Energy Commission, and Arizona PIRG
- **Quantification Methods:** CCS evaluated and compared a series of existing assessment, as follows:

  At the request of the United States Congress, the National Research Council of the National Academy of Sciences (NRC/NAS) conducted a study of the feasibility of reducing rolling resistance in replacement tires. The 2006 NRC/NAS study made the following conclusions:

  - "Reducing the average rolling resistance of replacement tires by a magnitude of 10 percent is technically and economically feasible.

- Tires and their rolling resistance characteristics can have a meaningful effect on vehicle fuel economy and consumption.
- Although traction may be affected by modifying a tire's tread to reduce rolling resistance, the safety consequences are probably undetectable.
- Reducing the average rolling resistance of replacement tires promises fuel savings to consumers that exceed associated tire purchase costs, as long as tire wears life is not shortened."

A 2003 study commissioned by the California Energy Commission found that about 300 million gallons of gasoline per year can be saved in that state with lower rolling resistance tires. A set of four low rolling resistance tires would cost consumers an estimated $5 to $12 more than conventional replacement tires. The efficient tires would reduce gasoline consumption by 1.5 to 4.5 percent, saving the typical driver $50 to $150 over the 50,000-mile life of the tires. Consumers would save more than $470 million annually at current retail prices or approximately $1.4 billion over the three-year lifetime of a typical set of replacement tires.

The New Mexico PIRG report, "A Blueprint for Action," presents estimates for potential carbon dioxide emission reductions from a low-rolling resistance replacement tire program. The AZ PIRG estimate for GHG reductions from a fuel efficient tire program is 0.25 MMTCO2e in 2020.

CCS estimated the reduction in GHG emission from this policy using the Draft New Mexico Greenhouse Gas Inventory and Reference Case as a baseline. Using an emission reduction factor of 2.4%, the resulting CCS estimate for emissions reductions from fuel efficient replacement tires is 0.3 MMtCO2e in 2020. The cumulative emissions reduction for 2008-2020 is 3.5 MMTCO2e. If the emission reduction factor were instead 4.5%, at the upper end of the range of reported fuel conservation due to LRR replacement tires, then the estimated emissions reduction would be 0.6 MMTCO2e, and the cumulative emissions reduction for 2008-2020 would be 6.3 MMTCO2e.

Key Assumptions: The analysis assumes a LRR replacement tire program begins in 2008. The emissions reductions from LRR replacement tires are the result of gasoline conservation, creating a cost savings for consumers. The present value of the cumulative net benefits to society of an LRR replacement tire program through 2020 is -$61.42 per tCO2e. This cost effectiveness estimate is sensitive to the average price of fuel.

The estimate of costs associated with LRR replacement tires account for faster tire wear (assuming that tires have lower tread) and an increase in the cost of production that is passed through to consumers. According to the NRC/NAS study, consumers would pay an additional $12.00 per year to replace tires (including installation), and they would pay an additional $1.00 per tire due to increased production costs.

Key Uncertainties

The low rolling resistance fuel efficient tires program is based upon existing off-the-shelf technologies and products that already exist in the consumer marketplace. These tires are already available in the marketplace, and are comparable with the tires included as original equipment on new purchase light duty vehicles.

Contributing Issues

Some reduction in criteria pollutants.

Feasibility Issues

Some members of the group raised questions about potential safety and performance compared to conventional tires.

The 2006 National Academy of Sciences study of LRR replacement tires reported that "the committee could not find safety studies or vehicle crash data that provide insight into the safety impacts associated with large changes in traction capability, much less the smaller changes that may occur from modifying the tread to reduce rolling resistance."

Status of Group Approval:

Pending.

Level of Group Support:

Pending.

Barriers to Consensus:

Pending.

TLU-3 Low-GHG Operation of State Fleet Vehicles

Policy Description:

This policy option strengthens New Mexico's commitment to reduce GHG emissions due to operation of the vehicles owned by the state. Executive Order 05-049 (9/23/05) has put the State on a path toward increasing the efficiency of, and use of alternative fuels in, the fleet of State-owned vehicles. Relevant sections of that order require the following:

- By 2010, 15% of fuel used in state vehicles must be biofuels.
- Immediately, 75% of all vehicles must be flex-fuel or hybrid.
- Immediately, new vehicles must have the highest fuel economy for the intended use.

This option aims at both fuel efficiency and use of biofuels in the State fleet.

Policy Design:

The CCAG recommends that New Mexico enact legislation that codifies the provisions of Executive Order 05-049, and requires that the State increase its use biofuels in the fleet of State vehicles to match the annual targets set forth in Option TLU-6a (Alternative Fuels Use). This is an enabling option that would have the State government lead by example, ensuring that its own fleet of vehicles meets or exceeds the targets set for the State as a whole.

[add elements of vehicle types and/or VMT per final design of TLU-6]

Goal Levels and Timing: ***[insert final targets and specify years]***

Coverage of parties: New Mexico state government agencies.

Implementation Mechanisms

Administrative order and full State cabinet participation.

Types(s) of GHG Benefit(s):

CO2 reductions

Estimated GHG Savings and Costs Per Ton:

GHG reductions and costs for this enabling option are incorporated into those reported under TLU-6, Alternative Fuels Use.

Key Uncertainties:

Pending.

Contributing Issues

Pending

Feasibility Issues:

Pending.

Status of Group Approval:

Pending.

Level of Group Support:

Pending.

Barriers to Consensus:

Pending.

TLU-4 Pay-As-You-Drive Insurance

Policy Description

Pay-As-You-Drive (PAYD) insurance program: changes part of vehicle insurance payments from fixed charges to per-mile charges. By allowing people to save money by changing their driving decisions, PAYD reduces VMT and emissions.

Policy Design

The CCAG recommends that New Mexico should change insurance regulations to allow PAYD insurance, and initiate and promote an aggressive pilot of PAYD in 2008. Assuming this pilot is successful, market penetration could increase to 100% by 2020. This could happen either through competitive pressure (increasing numbers of companies offer it in order to stay competitive) or through a change in state policy mandating PAYD at some point after it has been shown to work.

New Mexico PAYD policy would:

Continue to set rates by existing class of driver

> Allow rates to be set—as most insurance rates are—for classes. PAYD rates would be charged within classes, so that a driver in that class (for example, "rural") traveling the average distance would pay the same under PAYD as before.

Use existing technology

> The necessary equipment for remote mileage readings is standard on an increasing number of new cars (such as GM OnStar-equipped vehicles). Add-on equipment to relay mileage automatically has been cost-effectively added in several pilot projects. All MY1996 vehicles and newer have OBD (on-board diagnostics) that already electronically monitor mileage that can be quickly downloaded via transponder. Finally, current odometers are sufficiently tamper-proof to support yearly mileage readings with no additional technology.

Implementation Method(s):

Authorization and pilot project, followed by evaluation and promotion.

Related Policies/Programs in Place:

None cited.

Types(s) of GHG Benefit(s):

CO_2 reductions.

Estimated GHG Savings and Costs Per $MMtCO_2e$:

	2012	2020	Units
GHG Emission Savings	0.2	0.9	$MMtCO_2e$
Net Present Value (2006-2020)		No net cost	$million
Cumulative Emissions Reductions (2006-2020)		5.0	$MMtCO_2e$
Cost-Effectiveness		No net cost	$/t$CO_2e$

Comment: 2012 reflects low market penetration. 2020 reflects 100% market penetration.

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Data Sources, Methods, and Assumptions:

CCS examined an New Mexico (NM) PIRG report and compared its model results for estimated reductions in vehicle miles of travel with other studies of PAYD policies, including those produced by the Economic Policy Institute and Resources for the Future (RFF). NM PIRG conducted an analysis of the potential GHG reductions from a PAYD automobile insurance policy. CCS found that the NM PIRG estimates were comparable with other estimates, which ranged from 8 to 20%. As a result, the NM PIRG results for estimated reductions in vehicle miles of travel and greenhouse gas emissions reductions fell within the lower range of the comparable estimates. That is, the emissions reduction estimates are conservative.

(Additional text to be added. Range of GHG tons above captures “allowed” to “required”)

Key Uncertainties:

Experience with pilot programs suggests enthusiastic reception by many customers. Any of these pilots could be useful sources of models for a New Mexico pilot project.[1]

Nonetheless, the effects of PAYD insurance on driver behavior when expanded to the entire driving population are subject to some significant uncertainty.

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[1] For additional information see: Kevin Maney, “For a price, would you let car insurer along for the ride?”, *USA Today*, 8/3/05. http://www.usatoday.com/money/industries/technology/maney/2005-08-03-car-monitoring_x.htm ;Todd Litman, “Pay-As-You-Drive Vehicle Insurance: Converting Vehicle Insurance Premiums Into Use-Based Charges” http://www.vtpi.org/tdm/tdm79.htm; Dean Baker, “Insurance By the Mile”, *Harper’s Magazine*, June, 2006. http://harpers.org/bb-insurance-by-the-mile-2838238.html ; Ian W.H. Parry, “Is Pay-As-You-Drive Insurance: a Better Way to Reduce Gasoline than Gasoline Taxes?,” Resources for the Future (www.rff.org/Documents/RFF-DP-05-15.pdf), 2005. See also the discussion in the NM PIRG report (pp. 24-26).

Ancillary Benefits and Costs, if applicable:

- Reductions in criteria air pollutants
- Reductions in crashes from reduced VMT.
- Increase in insurance rate equity.

Feasibility Issues, if applicable:

While PAYD can be designed to have no relative impact on rural drivers compared to today's rate structures, until detailed implementation proposals are developed, concerns about potential disproportionate impacts on rural drivers will remain.

Status of Group Approval:

Pending

Level of Group Support:

Pending.

Barriers to Consensus:

Pending.

TLU-5 Incentive/Disincentive Options Bundle

Policy Description

The four components studied and developed under this option would create financial incentives for the purchase and operation of vehicles that emit lower levels of GHG.

Policy Design

The CCAG recommends that New Mexico further study and develop policy options that create incentives and disincentives for the purchase and operation of vehicles with varying fuel economy. The range of policies to be studied and developed include:

1) A multi-state "feebate" program, including the neighboring states of California and New Mexico. Feebate proposals usually have two parts: 1) a fee on relatively high emissions/lower fuel economy vehicles; and 2) a rebate or tax credit on low emissions/higher fuel economy vehicles.
2) ***Deleted per last TLU call – Vehicle Registration Fees Linked to GHG/MPT***
3) A change in new vehicle excise taxes that increases taxes for relatively high-emitting vehicles and reduces taxes for relatively low-emitting vehicles. Overall, excise tax revenue would remain the same.
4) A consumer labeling program that provides buyers with better information on the GHG emissions of new vehicles.
5) ***Added per last TLU call – Incentives for Diesel Retrofits.*** Such incentives would encourage the replacement of high-emitting diesel truck engines with newer, less polluting engines.

Together, these incentives could change the vehicle fleet technology mix through a combination of demand- and supply-side changes. First, the feebates would directly affect consumer choices for vehicle purchases as a result of the financial incentives. Second, the feebates could indirectly affect the types of vehicles that automobile manufacturers choose to put into the marketplace.

- **Goal levels: Prepare a detailed study of options and impacts.**
- **Timing:** Complete in 2007.
- **Parties:** Industry, NMED, NM DMV, NM Department of Taxation and Revenue

Implementation Mechanisms

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Existing analysis shows that 90% of the benefits of feebate programs are likely to arise from the manufacturing (supply side) response rather than the consumer (demand side) response. Because individual states such as New Mexico have a small share of the national new vehicle market and thus are unlikely to have a significant influence on the supply side by themselves, states in the southwest have been exploring coordinated multi-state programs. A consistent set of feebate programs across multiple states may include a large enough share of the US market to have a more significant effect on supply side decisions made by automobile manufacturers.

With that in mind, incentives and disincentives that should be studies and developed include:

1. **Feebates** – A "Multi-State LDV GHG Fee and Rebate Study and Pilot Program" would consider the expected impacts of individual state feebate programs as well as coordinated or consistent multi-state programs. Ideally, such a multi-state study would include a number of western states in order to assess boundary issues as well as coordination issues. Initial analysis suggests that the New Mexico new car market, may be too small a share of the market to have an effect on the types of vehicles that manufacturers put into the marketplace. A consistent set of feebate programs across multiple states may include a large enough share of the U.S. market to have a more significant effect on supply side decisions made by automobile manufacturers. The study would also identify and assess the actual benefits and costs of a pilot feebate program to be implemented at the county or metropolitan level in the western United States.
2. ***Deleted per last TLU call – Vehicle Registration Fees Linked to GHG/MPT***
3. **Excise Taxes** – Examine options similar to Bill 2438 in the 2005 Massachusetts legislature [Marzelli] (http://www.mass.gov/legis/bills/house/ht02/ht02438.htm) Which directs the Secretary of Taxation and Revenue to set a variable excise tax on new passenger vehicles ranging from 0 to 10 percent, based on the vehicle's CO_2 emission rate. The tax would be lowest on the lowest emitting vehicles and highest on the highest emitting vehicles, subject to certain guidelines and constrained by maintaining the current average excise tax of 3 percent (an annual adjustment of the schedule of taxes would maintain this average). The excise tax could be set at zero for vehicles that comply with the European Union GHG standards (for discussion of EU standards, see *Pew Center*, *Comparison of Passenger Vehicle Fuel Economy & GHG Emission Standards Around the World, 12/04 (*http://www.pewclimate.org/global-warming-in-depth/all_reports/fuel_economy/index.cfm, pp. 11-12. New Mexico currently has a zero excise tax for hybrid cars.
4. **Labeling Program** - Examine options similar to an EU program begun in 2001, and a recent proposal by a researcher at Resources for the Future (http://www.rff.org/rff/News/Features/Combating-Global-Warming-One-Car-at-a-Time.cfm). It would require dealers to place a GHG label on each new vehicle that includes the estimated amount of CO_2 (in pounds) produced annually and places the vehicle into one of five distinct groupings from "best" to "worst."

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Deleted: ew Mexico could adopt a feebate similar to that proposed by ACEEE in *Vehicle Efficiency Incentives: An Update on Feebates for States, 9/05 (www.aceee.org/pubs/t051.htm)* See alternative designs and sample feebate structure on pp. 1-5, and note predicted effects of state vs. national progra

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5. ***Added per last TLU call – Incentives for Diesel Retrofits.*** Heavy-duty diesel engine emission standards were strengthened with the 2004 model year and will be even more stringent starting in the 2007 model year. However, a number of older, dirtier engines will still be in the fleet due to the long durability of heavy-duty truck engines. Retrofit controls can be applied to these older engines to reduce their emissions. These engines can also be rebuilt with engines meeting the latest emission standards, or retired and replaced by a newer, cleaner truck. Addtionally, the use of biodiesel in these older engines can be used to reduce GHG emissions. Examine options that focus on heavy-duty diesel engines used by small owners/operators, as larger, national fleets typically require more rapid turn-over of heavy-duty diesel engines. Financial incentives and small business assistance could be used to assist small owners/operators to apply for grants or loans available for retrofitting or replacing their heavy-duty diesel engines, or converting their engines to run on biodiesel fuel. The focus would be on engines that otherwise would continue to be in use for a number of additional years.

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Relateed Policies/Programs In Place

While feebate proposals have been described in academic studies, there has been no implementation of a full feebate program in the United States. While there are individual 'gas guzzler tax' and tax incentives for hybrid vehicle purchases, there is not yet any history of an on-the-ground example of a comprehensively implemented feebate program.

Types(s) of GHG Benefit(s):

All GHG exhaust emissions through reduced fuel consumption.

Estimated GHG Savings and Costs Per Ton:

In current form (as a study), this would be a non-quantified option

Key Uncertainties

Both the United States Department of Energy and the Canadian Transport Ministry have studied the potential impacts of national level feebate programs in recent years. While these studies have informed the debate about the advantages and disadvantages of national feebate programs, there remains considerable uncertainty about the potential benefits and costs of state or multi-state level feebate programs. There is an important need for a greater understanding of the potential effects of single state or multi-state feebate programs on the types of vehicles that manufacturers put into the marketplace.

Contributing Issues

Pending

Feasibility Issues:

Pending

Status of Group Approval:

Pending.

Level of Group Support:

Pending.

Barriers to Consensus:

Pending.

TLU – 14, Truck Stop Electrification/Anti-Idling

Policy Description

This policy option involves reducing the amount of time that vehicles idle through the combination of a Statewide anti-idling ordinance and by promoting and expanding the use of technologies that reduce long-term heavy-duty vehicle idling, with an emphasis on encouraging the use of innovative truck stop electrification. Anti-idling control measures reduce fuel consumption and emissions from stationary freight vehicles (potentially wasted energy). With truck stop electrification, truck drivers can shut off their engines and obtain heating, cooling, electrical outlets, and communication and entertainment options through a delivery tube provided in electrified truck stop spaces that connects to the truck through a window adapter. In addition to truck stop electrification, other available technologies that reduce heavy-duty vehicle idling include automatic engine shut down/start up system controls; direct fired heaters (for providing heat only); and auxiliary power units.

Policy Design

The CCAG recommends that New Mexico develop and implement a statewide ordinance banning idling by heavy-duty vehicles in most situations and set up truck stop electrification stations at key truck stops and truck rest areas along the major highways in New Mexico.

Develop and implement a statewide ordinance banning idling by heavy-duty vehicles in most situations. The ordinance should be designed to be easily enforceable by the appropriate state and local agencies. It is critical that a dedicated state funding stream for enforcement be identified for this measure to be successful in reducing vehicle idling and the resulting reductions in GHG emissions. The ordinance would also need to limit exemptions as much as possible, to make it easier to enforce. However, idling that occurs for public health and safety reasons (such as emergency vehicles) should be exempted from this rule.

Set up truck stop electrification stations at key truck stops and truck rest areas along the major highways in New Mexico. Electricity for powering these stations should come from clean sources, such as solar panels that would cover the trucks and also provide shade. Require truck stops to purchase renewable energy certificates. Coordinate this measure with Arizona and other neighboring States.

- **Goals:** Reduce fuel consumption from idling of heavy-duty diesel vehicles by 80% by year 2010, and by 100% by 2020.
- **Timing:** Have ordinance in place by 2008.

- **Coverage of parties:** Industry, NMED, Counties, truck stop owners.

Implementation Mechanisms

Information and education: Provide information to fleet carriers, shippers, retailers, bus companies, school districts, and others involved in the diesel fleet industry indicating the economic benefits, as well as the environmental benefits, of reducing or eliminating idling. Emphasize the fuel savings benefits, reductions in toxic emissions, and reduced engine wear associated with reducing idling. Also, identifying best practices within the industry and recognizing companies with these best practices in place within New Mexico should be used to encourage companies to select these carriers for their shipments. Develop outreach materials with cost benefits information and toxic diesel health impacts. Outreach materials should also be geared toward making the general public aware of the GHG, toxics, and fuel-saving benefits of eliminating idling on personal vehicles, as well as on trucks and buses.

Technical assistance: Coordinate with anti-idling product manufacturers to organize workshops/outreach programs to regulated community to let them know of technological options that provide alternatives to the need for idling including products for cabin comfort, power for other functions (e.g., refrigerated trucks), and engine warm-up.

Funding mechanisms and or incentives: Propose legislation to partially fund idling technology loan grants for innovative truck stop electrification, focusing grants on high idling areas. A small tax on diesel fuel might be considered as a means for funding truck stop electrification. Tax credits may be available for installing electrification through the National Energy Bill. Truck stop owners could offer their own incentives for the use of electrification (e.g., credits for free hours of electrification with the purchase of a specified amount of diesel).

Voluntary and or negotiated agreements: Encourage participation in EPA's SmartWay Transport Partnership (or similar programs).

Codes and standards: Develop a statewide ordinance banning idling by heavy-duty diesel commercial trucks and buses

Pilots and demos: Investigate availability of funding for a pilot project demonstrating the use of solar-powered truck-stop electrification. Evaluate the effectiveness of the pilot program before implementing on a broader scale.

Related Policies/Programs in Place

There are currently no anti-idling ordinances in place in New Mexico.

Types(s) of GHG Reductions

Reducing idling will reduce black carbon emissions, as well as all other GHG exhaust emissions (CO_2, CH_4, N_2O) through reduced fuel consumption. However, it is important to also ensure that any technologies used to reduce idling have lower emissions than the diesel truck idling emissions they are replacing.

Estimated GHG Savings and Costs per MTCO2e

	2012	2020	Units
GHG Emission Savings	0.34	0.49	MMtCO2e
Net Present Value (2006-2020)			$million
-at $2.40/gallon diesel		$20	
-at $3.40/gallon diesel		$-336	
Cumulative Emissions Reductions (2006-2020)		5.1	MMtCO2e
Cost-Effectiveness			$/tCO2e
-at $2.40/gallon diesel		$4	
-at $3.40/gallon diesel		$-66	

- **Data Sources:**

American Transportation Research Institute, "Idle Reduction Technology: Fleet Preferences Survey," February 2006 for technology costs.

EPA Smartway Transportation Partnership (http://www.epa.gov/otaq/smartway/idlingtechnologies.htm#truck-mobile) for technology costs.

"Analysis of Tehcnology Options to Reduce the Fuel Consumption of Idling Trucks," ANL/ESD-43, Argonne National Laboratory, Transportation Technology R&D Center, June 2000 for information on technology impacts.

Data from EPA's MOBILE6 model to estimate the proportion of CO2 emissions attributable to Class 8 trucks.

Data from USDOE/EIA *Annual Energy Outlook 2005* to estimate the amount of fuel consumed annually per truck.

- **Quantification Methods:** The estimated reduction in CO2 emissions from reduced idling was calculated based on estimating the portion of emissions and fuel consumption in the NM inventory that were attributable to Class 8 diesel trucks, estimating the portion of the total fuel consumption that would be consumed during idling, and applying a targeted reduction of 80 percent to this amount starting in 2008 and a reduction of 100 percent starting in 2015.

- **Key Assumptions:** This analysis will assume idle reductions are achieved only by Class 8 diesel truck population; these trucks idle for an average of 6 hours per day; they consume 0.8 to 1.2 gallons of diesel per hour during idling; and that a 80 (by 2010) or 100 (by 2020) percent reduction of diesel idling from these Class 8 trucks will be achieved.

  The cost analysis assumes a 5-year lifetime for idling technology equipment, applied to 80 percent of Class 8 vehicles starting in 2008 and 100 percent of Class 8 vehicles starting in 2015, at a cost of $6,000 per vehicle and a $2.40 per gallon diesel cost.

  Program administration costs, enforcement costs, and fines have not been factored into the cost analysis. Reduced vehicle maintenance costs have not been factored into the analysis.

Key Uncertainties

A small additional reduction in idling emissions could be achieved by buses, as well as other diesel trucks and gasoline vehicles and trucks that has not been quantified here.

The distribution of technology that would be selected by these trucks or fleets to reduce their emissions is highly uncertain. This will have a significant impact on the overall cost/cost savings of this measure. The use of these technologies will also cause a slight decrease in the CO2 and fuel consumption reductions achieved. The use of truck stop electrification would increase emissions from electricity generation.

Equipment cost and lifetime will vary by technology employed. The cost value selected was based on cost data summarized by American Transportation Research Institute, representing the capital costs of a variety of idle reduction technology. The cost of $6,000 per vehicle represents a mix of higher and lower technology costs. The cost analysis does not take into account the number of vehicles that have already installed idle reduction technologies.

Contributing Issues

Reductions in idling will also reduce emissions of toxics, NOx, and PM. California estimates that 70 percent of toxic risk comes from diesel engines.

Idle emission reductions will reduce fuel consumption, thus leading to a cost benefit from reduced operating costs.

Additional costs are associated with on-board idle reduction technologies, but fuel savings over time typically lead to a net savings.

Feasibility Issues

None identified.

Status of Group Approval

Pending

Level of Group Support

Pending

Barriers to Consensus

Pending

TLU – 15, Intermodal Freight Initiatives

This option is under review

Policy Description

Transfer freight carried over the roadway system to rail wherever possible.

Policy Design

Carrying freight by rail rather than truck can significantly reduce emissions and fuel consumption, while at the same time reducing congestion on major roadways. A number of small abandoned rail lines already exist in New Mexico. A primary goal of this measure is to restore those lines, which will allow freight to be carried by rail directly to a number of warehouses and industrial sites in existing developed areas. This would also provide an incentive to reduce sprawl from these businesses. Electrifying rail should also be considered.

- **Goals:** Reduce VMT from heavy-duty freight trucks by xx% through the transfer of freight to rail.
- **Timing:** TBD
- **Coverage of parties:** TBD
- **Other:** N/A

Implementation Mechanisms

TBD

Related Policies/Programs in Place

N/A

Types(s) of GHG Reductions

Primarily CO_2 through reduced heavy-truck VMT; also black carbon, N_2O, and CH_4 from vehicle exhaust.

Estimated GHG Savings and Costs per MTCO2e

TBD

- **Data Sources:**

  Information from American Association of Railroads

“Industry Options for Improving Ground Freight Fuel Efficiency—Technical Report,” prepared for USEPA by ICF Consulting, 2002.

- **Quantification Methods:** TBD

- **Key Assumptions:** TBD

Key Uncertainties

TBD

Contributing Issues

Reduced diesel fuel consumption.

Feasibility Issues

TBD

Status of Group Approval

Pending

Level of Group Support

Pending

Barriers to Consensus

Pending

TLU – 16, Reduced Speed Limit for Commercial Trucks

Policy Description

Reduce speed limit for commercial trucks to 60 or 55 mph. By reducing the vehicle speed, fuel economy is increased, reducing fuel consumption and CO_2 emissions.

Policy Design

The CCAG recommends that New Mexico reduce the speed limit for commercial trucks to 60 mph by 2008 and to 55 mph by 2015.

- **Goals:** Reduce Class 8 commercial truck traffic traveling above 60 or 55 mph on interstates, freeways, and major arterials by 50 percent.
- **Timing:** Begin enforcement of measure by 2008 with a 60 mph speed limit for Class 8 commercial trucks. Lower speed limit to 55 mph by 2015.
- **Coverage of parties:** NMDOT, state police

Deleted: <#>Other: N/A¶

Implementation Mechanisms

Education/outreach: Provide information to the trucking industry and the general public about the fuel economy benefits obtained when reducing speeds from 70 mph to 60 or 55 mph. Emphasize fuel savings and safety aspects also.

Codes/standards: Have all interstates, freeways, and major arterials signed with a maximum speed of 60 or 55 mph for Class 8 commercial trucks. Significant enforcement resources will be needed to ensure the success of this measure.

Related Policies/Programs in Place

Current speed limits are as high as 75 mph, depending on the highway segment.

Types(s) of GHG Reductions

CO_2, black carbon

Estimated GHG Savings and Costs per MTCO2e

	2012	2020	Units
GHG Emission Savings	0.14-0.18	0.22-0.30	MMtCO2e
Net Present Value (2006-2020)			$million
-at $2.40/gallon diesel		$113-$150	

-at \$3.40/gallon diesel	\$-42 -\$-56	
Cumulative Emissions Reductions (2006-2020)	2.2-3.0	MMtCO2e
Cost-Effectiveness		\$/tCO2e
-at \$2.40/gallon diesel	\$50	
-at \$3.40/gallon diesel	\$-19	

The CCAG requested information on the benefits of applying a 60 mph speed limit to all vehicles traveling on the highways. The table below shows the results of an analysis of applying a 60 mph speed limit to all vehicles, starting in 2008. This includes the reductions from commercial trucks as well (e.g., this option could replace the commercial truck option, but is not incremental to the benefits of the commercial truck option).

	2012	2020	Units
GHG Emission Savings	0.54	0.65	MMtCO2e
Net Present Value (2006-2020)			\$million
-at \$2.40/gallon gasoline/diesel		\$825	
-at \$3.40/gallon gasoline/diesel		\$422	
Cumulative Emissions Reductions (2006-2020)		7.3	MMtCO2e
Cost-Effectiveness			\$/tCO2e
-at \$2.40/gallon diesel		\$113	
-at \$3.40/gallon diesel		\$58	

- **Data Sources:**

U.S. Department of Labor, Bureau of Labor Statistics, “Establishment Data; Hours and Earnings,” Table B-14 and “Employer Costs for Employee Compensation-December 2005,” Table 10.

U.S. Environmental Protection Agency, Office of Transportation and Air Quality, Smartway Transport Partnership, "A Glance at Clean Freight Strategies: Reducing Highway Speed," EPA420-F-04-007, February 2004.

U.S. Environmental Protection Agency, Office of Transportation and Air Quality, MOBILE6 model, documented in "User's Guide to MOBILE6.1 and MOBILE6.2: Mobile Source Emission Factor Model," EPA420-R-03-010, August 2003.

Ang-Olson, Jeffrey and William Schroeer, "Energy Efficiency Strategies for Freight Trucking: Potential Impact on Fuel Use and Greenhouse Gas Emissions," *Transportation Research Record 1815*, Transportation Research Board of the National Academy of Sciences, Washington, DC, 2002.

- **Quantification Methods:** The diesel fuel consumption from Class 8 diesel trucks was multiplied by 60 (low) or 80 (high) percent to account for the amount of fuel consumed at speeds above 60 mph from 2008 through 2014. Starting in 2015, the speed for Class 8 trucks was reduced to 55 mph. This fuel consumption was then multiplied by 50 percent to account for the expected penetration rate of this measure. This quantity was then multiplied by the percentage increase in fuel economy. The ratio of reduction in fuel consumption was then multiplied by the baseline CO2 emissions to estimate the reduction in CO2 from this measure. Costs were calculated by multiplying the per unit fuel cost by the number of gallons reduced and subtracting this from the product of the increased time required for traveling the same distances at 60 mph (prior to 2015) or 55 mph (2015 and later) rather than 70 mph multiplied by the hourly trucking industry cost.

- **Key Assumptions:** 60 to 80 percent of Class 8 diesel truck travel (fuel consumption) is spent at speeds above 60 mph, assumed to be at 70 mph on average. 50 percent of this truck travel is assumed to be reduced to 60 mph or 55 mph (Ang-Olson and Schroeer).

  Each one mile per hour reduction of speed from 70 mph to 55 mph yields a fuel economy increase of 0.1 miles per gallon (EPA).

  A fuel cost of $2.40/gallon is assumed.

  Average hourly truck transportation wage is $17.22/hour (BLS), with an industry average overhead rate of 1.48 (BLS).

  Base fuel economy assumed to be 6.42 mpg (EPA MOBILE6 model); assumed to increase to 7.42 mph with this measure.

Key Uncertainties

Ability to enforce a speed limit significantly lower than current policy.

Contributing Issues

Some reduction in criteria pollutants. Reduction in fuel consumption. Increase in travel time required. Increased costs of speed enforcement are not included here. Should lead to increased driver safety which may decrease operating costs. Reducing speed is also likely to reduce truck maintenance costs.

Feasibility Issues

TBD

Status of Group Approval

Pending

Level of Group Support

Pending

Barriers to Consensus

Pending

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Scenario 1: 2.4% reduction in gasoline consumption from LRR replacement tires

	2012	2020	Units
GHG Emission Savings	0.3	0.3	MMtCO2e
Net Present Value (2006-2020)		-$218	$ million
Cumulative Emissions Reductions (2006-2020)		3.5	MMtCO2e
Cost-Effectiveness		-$61	$/tCO2e