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**Transportation and Land Use (TLU) Technical Working Group
Summary List of Policy Options**

	Policy Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2007-2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Status of Option
		2010	2020	Total 2007-2020			
TLU-1	Light Duty Vehicle Clean Car Program	<i>Not Quantified</i>					Pending
TLU-2	Fuel Efficient Replacement Tires	<i>Not Quantified</i>					Pending
TLU-3	Vehicle MPG Consumer Information	<i>Not Quantified</i>					Pending
TLU-4	Financial and Market Incentives for Low GHG Vehicle Ownership and Use	<i>Not Quantified</i>					Pending
TLU-5	Growth and Development Bundle	<i>Not Quantified</i>					Pending
TLU-6	Alternative Fuels Bundle (discuss changing to Low-Carbon Fuels Bundle)	<i>Not Quantified</i>					Pending
TLU-7	Heavy Duty Vehicle Emissions Standards and Incentives	<i>Not Quantified</i>					Pending
TLU-8	Truck Anti-Idling and Truck-stop Docking and Electrification	<i>Not Quantified</i>					Pending
TLU-9	Procurement of Efficient Fleet Vehicles	<i>Not Quantified</i>					Pending
TLU-10	Transportation System Management	<i>Not Quantified</i>					Pending

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TLU-11	Vehicle Backhauling Efficiencies (discuss potential modification to scope)	<i>Not Quantified</i>					Pending
TLU-12	GHG Emissions Reductions from Off-Road Engines and Vehicles	<i>Not Quantified</i>					Pending
TLU-13	Reduced GHG Emissions from Aviation	<i>Not Quantified</i>					Pending

TLU-1 Light Duty Vehicle Clean Car Standards

Policy Description

Adopt the State Clean Car Program (also known as the “Pavley” standards or California GHG Emission Standards) in order to reduce GHG emissions from new light-duty vehicles. The standards, which must still be approved by US EPA, would take effect in Model Year 2011 (calendar year 2010). Other Clean Car Program elements include standards requiring reductions in smog- and soot-forming pollutants, and promoting introduction of very low-emitting technologies into new vehicles.

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% from new vehicles, phased in from 2009 to 2016, through a variety of means. Eleven states (11) already have adopted the California Clean Car Program standards: California, Connecticut, Maine, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont and Washington.

Policy Design

Goal levels: Go beyond the federal emissions standards for cars and light trucks within the parameters of the California standards. Note: States can choose between the federal standard or go with the more stringent California standards.

Timing: The program would start in 2007 so that MT can implement the California standards – regulatory program could begin with vehicle model year 2011.

Parties Involved: Applies to MY 2011 new cars and light trucks. The law would directly affect automobile manufacturers, car dealers, and consumers. Compliance concerns would affect manufacturers and dealers.

Other: The California standards currently are being litigated and have not been approved by the EPA. The timing may be affected by the date of enactment of legislation, likely litigation, and the regulatory process.

TLU-2 Fuel Efficient Replacement Tire Program

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. Snow and mud LRR are even available.

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 LRR tires as a way to contribute to meeting the federal automobile fuel economy standards, which is referred to as CAFE. When replacing the original tires, consumers often purchase less fuel-efficient and potentially, more costly (depending on annual vehicle miles traveled), tires. Currently, tire manufacturers and retailers are not required to provide information about the fuel efficiency of replacement tires.

An appropriate state agency would initiate a fuel efficient tire replacement program. The program would include consumer education, product labeling, and minimum standards elements.

Another state program would be introduced to buy back used tires as a waste management technique. An auxiliary program would be established to funnel the used tires to businesses that recycle tires for other non-combustible usages (e.g., asphalt and concrete components, rubber piping, playground mulch, etc.), thereby creating new economic opportunities in the state.

These programs would be developed under a rule development process. All programs would incorporate the best scientific information, including the test results of tires conducted by the tire manufacturers, the California Energy Commission, and the National Academy of Sciences.

Policy Design

Goals: Establish voluntary LRR standards that achieve an average 4.5% gain in fuel economy.

Timing:

By 2009, the State will:

- Initiate a fuel efficient tire replacement program for the state fleet.
- Establish voluntary LRR standards for tires.
- Create state incentive programs for the installation of LRR tires, which would include tax benefits, rebates, and/or feebates.
- Develop a marketing program with the supplemental used tire applications

By 2011:

- All tires replaced on state-owned and leased vehicles will be LRR tires, if available for the vehicle type.

- Establish legislation to set LRR standards for tires with mandatory manufacture labeling.

Parties Involved: MT Dept. of Environmental Quality, MT Dept. of Transportation, LRR manufacturers, tire distributors, Montana University System, Headwaters Cooperative Recycling.

TLU-3 Consumer Information on Vehicle Miles Per Gallon (MPG)

Policy Description:

Provide consumers with information about the fuel efficiency in relation to the purchase, maintenance, and operation of their vehicles. Consumers would receive real-time information on the miles per gallon (MPG) while their vehicles are in operation and alerts when their tire pressure is too low (e.g., devices like Air Alert Valve Caps). In addition, consumers would receive public education and information relating to the impact that vehicle maintenance practices have on the operation of their vehicles. Finally, consumers would be encouraged to consider the MPG of vehicles before and at the time of purchase of their vehicles.

Policy Design:

Goal levels: Increase consumer awareness by 100% by 2020.

Timing: Program would begin in 2008, with program expansion as resources are made available.

Parties Involved: MT Dept. of Environmental Quality, MT Dept. of Transportation, DMV, product manufacturers, product distributors, Montana University System.

TLU-4 Financial and Market Incentives for Low GHG Vehicle Ownership and Use

Policy Description

Several components may be studied and developed under this option that would create financial incentives for the purchase and operation of vehicles that emit lower levels of GHG. The CCAC recommends that Montana 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:

- **Feebates.** A multi-state “feebate” program, including the other western states including Arizona, New Mexico, Colorado, California, Oregon, and Washington. Feebate proposals usually have two parts: (a) a fee on relatively high emissions/lower fuel economy vehicles, and (b) a rebate or tax credit on low emissions/higher fuel economy vehicles.
- **GHG–based Excise Taxes.** 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.
- **Vehicle Registration Fees.** The state would give local counties and cities the authority to vary local registration fees in order to maintain incentives for the ownership and use of light duty vehicles. The purpose of the varying fees would be to maintain incentives use and ownership of low GHG vehicles.
- **Increased Fuel Tax.** Increases in fuel taxes would be considered in order to fund other programs that reduce GHG emissions from the transportation sector.
- **Other light duty vehicle operational use incentives.** The state of Montana would consider other incentive programs not otherwise listed in order to provide a financial and/or market incentive for low-GHG operation and ownership of light duty vehicles.

Taken together, these incentives could change the vehicle fleet technology mix through a combination of demand- and supply-side changes.

Policy Design

Goal levels: Prepare a detailed study of options and impacts.

Timing: Complete in 2008.

Parties Involved: Industry, MT DMV, MT Department of Taxation and Revenue.

TLU-5 Growth and Development Bundle

Policy Description:

This bundle of options encompasses five components related to reducing GHG emissions through promotion of multi-modal transit options and land use practices and policies. These policies contribute to GHG emission reductions by reducing vehicle trips and total vehicle miles traveled.

Potential actions include the following programs and program elements:

- Infill and Brownfield redevelopment.
- Transit-oriented development.
- Smart growth planning, modeling, and tools
- Targeted open space protection
- Expanding transit infrastructure and service

Policy Design:

Under Development.

Goal levels: Under Development.

Timing: Under Development.

Parties Involved: Under Development.

TLU-6 Alternative Fuels Bundle

(Discuss possibility of changing to “Low-Carbon Fuels Bundle,” with California policy as model. Such a policy would be more ‘fuel neutral’ than the ‘alternative fuels’ framework. Since the policy is more performance oriented, many fuel sources and ‘feedstocks’ may be able to meet the standards and goals of such a policy.)

Policy Description

This policy option seeks to increase market penetration of biofuels in Montana by a mixture of policies (voluntary and/or mandatory) to achieve feasible goals. Offset fossil fuel use (gasoline) with production and use of starch-based and cellulosic ethanol.

Offsetting gasoline use with ethanol can reduce GHGs to the extent that the ethanol is produced with lower GHG content. Use of biodiesel offsets the consumption of diesel fuel produced from oil (fossil diesel). Since biodiesel has a lower GHG content than fossil diesel, overall GHG emissions are reduced.

The elements of a strategy to increase alternative fuels use would include:

- Fuel Quality Standards.
- Low Carbon Fuel Standards.
- State Government Fleet ‘Leadership’ Programs for adoption of Alternative Fuels.
- Alternative Fuel Infrastructure Development.

Policy Design

Under Development.

Goal levels: Under Development.

Timing: Under Development.

Parties Involved: Under Development.

TLU-7 Heavy Duty Vehicle GHG Emissions Standards and Incentives

Policy Description

The state of Montana would seek to work with other states and the U.S. Environmental Protection Agency (EPA) to advance greenhouse gases (GHG) emissions standards for on-road heavy-duty vehicles. The state would also advance incentive programs to encourage the use of lower GHG emissions heavy-duty vehicles. The state would also adopt programs to encourage the early retirement of older, less efficient engines and vehicles.

A number of approaches to diesel emission reductions include diesel repower and replacement programs, installation of particulate filters or traps, installation of diesel oxidation catalysts such as selective catalytic reduction, and installation of other exhaust after treatment technologies. Types of vehicles retrofit under these programs include heavy-duty trucks, motor coaches, and transit and school buses.

Policy Design

Goal levels: The state would lead by example by initiating a diesel retrofit program for the state-owned and leased vehicle fleet to eventually reaching a minimum of 80% of fleet.

Timing:

- The state would lead by example by initiating a diesel retrofit program for the state-owned and leased vehicle fleet by 2009.
- By 2009, a voluntary diesel retrofit program will be established by a state agency. Information packages would be developed about the health effects of air pollutants on human health, particularly on children. The program would create incentive options and marketing strategies, track retrofit and research activities, and spearhead the progression of on-road heavy-duty GHG emissions standards with other states and the EPA.
- Incentive options will be available for consumers by 2011.

Parties Involved: MT Dept. of Transportation, MT Dept. of Environmental Quality, Local Governments, MT Metropolitan Planning Organizations, relevant industries (utilities, parcel delivery services, etc.), public and private educational institutions/organizations, MT Public Health Department, Montana University System.

TLU-8 Heavy Duty Vehicle Anti-Idling/Truck Stop Docking/Electrification

Policy Description

This policy option involves reducing the amount of time that vehicles idle, 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 through local and statewide anti-idling actions. Anti-idling control measures reduce fuel consumption and emissions from stationary freight vehicles including greenhouse gases (GHG).

Develop and implement a statewide ordinance banning idling by heavy-duty vehicles in most situations. The state would also set up truck stop electrification stations at key truck stops and truck rest areas along major highways. Local ordinances may be necessary as the first step.

For clarification, truck stop electrification involves truck plazas that are equipped with electrification systems that allow drivers to shut off their engines and draw electrical power and in some cases, heating, cooling, and communication and entertainment options from a ground source. Different systems may or may not require the purchase of an adaptor to connect to the tractor. In addition to truck stop electrification, other available technologies that reduce heavy-duty vehicle idling include automatic engine shut down/start up system controls and auxiliary power units that include direct fired heaters.

Auxiliary power units are portable, truck-mounted systems that can provide climate control and power for trucks without idling. These systems generally consist of a small internal combustion engine (usually diesel) equipped with a generator and heat recovery system to provide electricity and heat. For air conditioning, an electrically powered air-conditioner unit is normally installed in the sleeper, although some systems use the truck's air-conditioning system. Direct fired heaters provide only heat to the cabin and engine.

Statewide and local ordinances would be developed and implemented banning idling by heavy-duty vehicles in most situations. The ordinances would be designed to be easily enforceable by the appropriate state and local agencies. The ordinances 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) would be exempted from this rule.

A dedicated state funding stream for enforcement would be identified in order for this measure to be successful in reducing vehicle idling and the resulting reductions in GHG emissions.

Transit companies contracted by the public school system to transport students with heavy-duty vehicles, regardless of the purpose (daily transport, sporting events, educational trips, etc.), will be responsible for developing their own truck plazas equipped with electrification systems to limit idling emissions as established by the appropriate state agency.

Charter bus services will also be encouraged to install their own truck plazas equipped with electrification systems.

Policy Design

Goal levels:

- Reduce fuel consumption from heavy-duty diesel vehicle idling at rest areas and truck stops in two steps: 40% in Phase I and 85% in Phase II.
- Require 85% of the transportation services contracted with a public school district to transport students using heavy-duty vehicles to have in-house electrification systems to reduce fuel consumption and emissions from idling.

Timing:

- Establishment of local ordinances will be strongly supported by the state, but local governments will need to determine their time schedules.
- Installation of electrification systems at rest areas by 2010.
- Installation of electrification systems at truck stops by 2011.
- Have statewide ordinance in place by 2011 with relevant documentation available for distribution.
- The two-stage time periods for the reduction in heavy-duty diesel vehicle idling are 2010 (Phase I) and 2020 (Phase II).
- Transportation services contracted with a public school district and uses heavy-duty vehicles to transport students must have electrification systems installed by 2011.

Parties Involved: MT Dept. of Environmental Quality, MT Dept. of Transportation, communities, counties, MT Metropolitan Planning Organizations, relevant public educational parties, trucking companies and drivers, truck stop owners/managers, trucking associations and unions (for out-of-state truckers), chartered bus service companies.

TLU-9 Procurement of Efficient Fleet Vehicles

Policy Description

Montana state and local government agencies would “lead by example” by enacting procurement policies and or joining the EPA SmartWay program and utilizing the SmartWay Upgrade Kits that result in adoption of lower emitting vehicle fleets. There are three primary components of the EPA SmartWay program: creating partnerships, reducing all unnecessary engine idling, and increasing the efficiency of light duty and heavy duty vehicles, rail, and intermodal operations.

The Hydrogen Energy Plan (HJ0026.ENR) has put the State on a path toward increasing the efficiency of, and use of alternative fuels in, the fleets of State and Private-owned vehicles. Relevant sections of that order require the following:

- By 2020, 100% of state-run vehicles must be powered by alternative/biofuels.
- By 2020, 50% of fuel used in all vehicles must be run by alternative fuels.
- Immediately, new vehicles must have the highest fuel economy for the intended use.

This policy option strengthens Montana’s commitment to reduce GHG emissions through fuel efficiency and use of biofuels in vehicles owned by the state while encouraging private fleets through incentive programs.

Policy Design:

The CCAC recommends that Montana enact legislation that codifies the provisions of HJ0026.ENR and requires that the State increase its biofuels use in the State vehicle fleet to match the annual targets set forth in Option TLU-4 (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.

Goal Levels and Timing: Where the fuel and vehicle-type requirements of TLU-6 are higher, the State vehicle fleet would conform to the higher requirements (e.g., hybrid purchases would be 10% of new vehicles in 2010, and use of ethanol and biodiesel would rise to 20% in 2020).

Parties Involved: Montana state and local government agencies, private industries and fleets, trucking industry.

TLU-10 Transportation System Management

Policy Description

The State of Montana would seek to reduce GHG emissions from the transportation sector through improvements to transportation system management. These efforts would focus on the improvement, management, and operation of the transportation infrastructure, with a focus on the roads and highway systems.

Policy Design

Under Development.

Goal levels: Under Development.

Timing: Under Development.

Parties Involved: Under Development.

TLU-11 Vehicle Backhauling Reduction

Policy Description

Empty backhauls of freight vehicles consume significant amounts of fuel and produce carbon dioxide emissions. By using backhauls for productive deliveries, the overall miles driven per unit freight can be cut, along with fuel use and carbon dioxide emissions.

The state of Montana would seek to find efficiencies in vehicle backhauling for both light duty and heavy-duty vehicles. Efficiencies in backhauling of the light duty sector would focus on ride-matching programs for commute-to-work trips. Efficiencies in backhauling would focus on facilitating improvements to matching of goods movements with available capacity. These goods movement-matching systems would seek to match carriers with empty backhaul capacity with movement needs of shippers and seek to increase the capacity of LTLs (Less-than-Truck-Loads)

Policy Design

Regular, for-hire common carriers already have cost based incentives to always run loaded. In addition, the freight broker industry already exists to match up truckers and loads.

Since deregulation in the 1980s, private carriers (those that haul their own goods) are already branching out and accepting more loads for hire on backhaul trips and are using sophisticated logistics to balance pick ups with deliveries. There are some national statistics indicating that private fleets may be running with about 25% empty capacity but with fuel prices and other costs rising, the companies are increasingly turning to marketing their unused capacity. About half now sell for-hire services - primarily to pay for backhaul costs. Since they don't have to maximize profits they create low cost competitors to the for-hire industry.

Two options for policies: make freight routing, scheduling and logistics software and services tax deductible, and encourage 24 hour shipping and receiving.

Goal levels: Reduce motor carrier backhauling by 5%. Trimming 1% of empty miles from one long haul truck can save over 100 gallons of fuel, cut greenhouse gas emissions over 1 metric ton, and increase ton-miles by nearly 20,000 per year.

Timing: Incremental progress to 2020 year.

Parties Involved: Private and for-hire motor carriers, shippers, manufacturers, freight brokers, truck drivers, third party logistics providers, local governments, Department of Revenue.

TLU-12 Off-Road Engines and Vehicles GHG Emissions Reductions

Policy Description

Off-road (also called non-road) engines and vehicles are significant emitters of greenhouse gases (GHG) and consumers of petroleum based fuels. Emissions from off-road engines can be reduced by adoption of GHG emissions standards and through retrofit technologies. The efforts would be expected to be consistent with efforts to reduce off-road emissions of other regulated air pollutants. In the state of Montana, these reductions would affect the following equipment categories: airport service, construction, industrial, lawn and garden, light commercial, logging, recreational (including snowmobiles and snow coaches), and recreational marine.

Policy Design

Goal levels: After the appropriate state agency has concurred, the state will adopt carbon dioxide (CO₂) emissions standards for the various off-road equipment categories based on engine horsepower, within two years of when a municipality or another state has established such regulations.

Timing:

- The state would lead by example by initiating a diesel retrofit program for 90% of the state-owned and leased off-road engines and vehicles by 2009.
- The state will implement a voluntary diesel retrofit program by 2009.
- The state will develop information about the emissions reductions from retrofit technologies on the various off-road engines and vehicles by 2009.

Parties Involved: Relevant industries, airports, general public, MT Dept. of Transportation, MT Dept. of Environmental Quality, local/county/federal governmental agencies.

TLU-13 Intercity Travel: Aviation

Policy Description

The State of Montana would seek to encourage to the federal government to take actions to reduce GHG emissions from the aviation portion of the transportation sector. Since the state and local governments do not have authority over in-air operations of aviation vehicles, the state would work with other states to encourage the United States federal government to take significant actions in this arena.

Working in cooperation with other state governments, the State of Montana would seek to develop and encourage a set of federal policies that would significantly reduce greenhouse gas (GHG) emissions reductions from the in-air operation of airplanes.

Policy Design

Goal levels: Seek development of federal government policies to reduce GHG emissions from aviation.

Timing: Activities to begin immediately.

Parties Involved: Appropriate state government agencies.