

Chapter 6

Transportation and Land Use

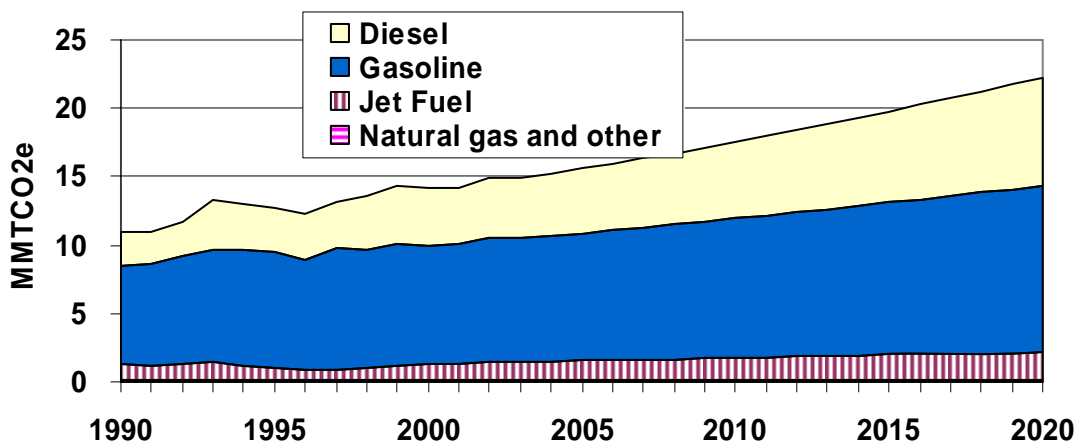
Overview of GHG Emissions

The transportation sector is a major source of GHG emissions in New Mexico – currently accounting for about 18% of the State’s gross GHG emissions. The transportation technologies and fuels used are key determinants of those emissions, along with population, economic growth, and various land use policies that all affect the demand for transportation services. GHG emissions from the transportation sector totaled about 14 MMtCO₂e in 2000.

Figure 6-1 shows historical and projected Transportation and Land Use (TLU) GHG emissions by fuel and source, and illustrates their rapid growth. TLU emissions are expected to roughly double from 1990 from 2020. New Mexico studies suggest on-road vehicle miles traveled (VMT) will continue to grow faster than the population, and rapid growth in freight VMT is also expected.

Subsequent to the compilation of the inventory and projections, Congress enacted the Energy Policy Act which contained a provision for a national renewable fuel standard that will likely increase the use of biofuels in New Mexico. This was classified as a “recent action” and was accounted for in the TLU TWG analysis.

Figure 6-1. Historical and Projected GHG Emissions from the Transportation and Land Use Sector, New Mexico, 1990 to 2020



Key Challenges and Opportunities

The principal means to reduce TLU emissions include improving vehicle fuel efficiency, substituting gasoline and diesel with lower-emission fuels, modal switches to lower-emission means of travel, and various strategies to decrease the growth in fuel use and VMT.

In New Mexico and in the nation as a whole, vehicle fuel efficiency has improved little since the late 1980s, yet many studies have documented the potential for substantial increases consistent with maintaining vehicle size and performance. The use of biofuels with lower GHG emissions is growing in New Mexico and larger market penetration is possible. New Mexico also has taken some steps to increase transit options and encouraging Smart Growth.

Overview of Policy Recommendations and Estimated Impacts

The CCAG recommends a set of XX *[final count]* policy options for the Transportation and Land Use sector that offer the potential for major economic benefits and emissions savings. As summarized in Figure 6-1, these policy recommendations could lead to emissions reductions from reference case projections of xx MMtCO₂e per year by 2020, cumulative savings of over xx MMtCO₂e from 2007 through 2020, and net cost savings of over xxx million through the year 2020 on a net present value basis (NPV).¹ The weighted average cost of saved carbon from the policy options for which quantitative estimates of both costs and savings were prepared was *[minus]*XX per metric ton of CO₂ equivalent, meaning that there is a net savings to the New Mexico economy in implementing this package of options.

Figure 6-2. Impact of Policy Recommendations on GHG Emissions from the Transportation and Land Use Sector, New Mexico

[INSERT FINAL FIGURE]

[account for national RFS]

The estimated impacts of the individual policies are shown in Table 6-1 below. The CCAG policy recommendations described briefly here (and in more detail in Appendix XX to this Report) result not only in significant emissions and costs savings, but offer a host of additional benefits as well. These benefits include (but are by no means limited to) reduced local air pollution, more livable, healthy communities, and economic development and job growth from in-state biofuel production.

In order for the TLU policy options recommended by the CCAG to yield the levels of savings described here, the options should be implemented in a timely, aggressive, and thorough manner. Notably, the State Clean Car must clear several hurdles before Arizona or any other state can adopt it, including EPA approval of the original California Clean Car Program (that other states can then opt into) and a court challenge to the underlying notion of regulation of GHG emissions

¹ The net cost savings are based on fuel expenditures, operations, maintenance, and administrative costs, and amortized, incremental equipment costs. All NPV analyses here use a 5% real discount rate.

from vehicles. If for any reason, New Mexico is not able to implement the Clean Car Program, other options could play a larger role. For example, the policies to be studied under the Incentives/Disincentives Options Bundle (TLU-5) could improve fuel efficiency through some combination of “feebates”, vehicle excise taxes that vary with fuel economy, and consumer labeling. 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. A multi-state approach to feebates is recommended here here because of the drawbacks of New Mexico (or any state) acting alone in this area.

Greater alternative fuel use (TLU-6) can be accomplished through a combination of voluntary and mandatory measures. The Renewable Fuel Standard recommended as part of TLU-6 can increase the use of ethanol and biodiesel, and the incentives recommended in Chapter 7 (Options A-3 and A-11) can promote in-state production of these fuels through methods with lower lifecycle GHG emission.

To be most effective, the group of policies aimed at VMT reductions (TLU-7 through TLU-11) will require change at every level of government, and as such will be most effective with focused leadership by the State, including training, outreach, and technical assistance to local governments.

Table 6-1
Transportation and Land Use Sector
Summary of Table of Policy Options

Option Number	Policy Name	Estimated 2012 GHG Reduction (MMtCO ₂ e)	Estimated 2020 GHG Reduction (MMtCO ₂ e)	Cumulative 2007-2020 GHG Reduction (MMtCO ₂ e)	Estimated Cost or Cost Saving (\$/tCO ₂ e)	Level of CCAG Support	
TLU-1	State Clean Car Program	0.4	1.9	10.4	-\$117	<i>Unanimous Consent</i>	
TLU-2	Low Rolling Resistance Tires	0.5	0.6	5.5	-\$92	<i>Pending</i>	
TLU-3	Low-GHG Operation of State Fleet Vehicles	<i>Not estimated</i>					<i>Pending</i>
TLU-4	Pay-As-You-Drive Insurance	0.2	1.0	5.0	Zero net cost	<i>Pending</i>	
TLU-5	Incentive/Disincentive Options Bundle	<i>Not estimated</i>					<i>Pending</i>
TLU-6	Alternative Fuels Use						
	Ethanol	0.1	0.3	2.0	Zero Zero under review under review	<i>Unanimous Consent</i>	
	Biodiesel	0.2	0.6	4.1			
	Hybrids/LSVs	0.1	0.6	2.7			
	<u>ZEVs/LSVs</u>	<u>0.0</u>	<u>0.1</u>	<u>0.2</u>			
	Total for Option ^a	0.4	1.7	9.1			

^a May not add exactly due to rounding.

<i>VMT Reduction Bundle TLU-7 to TLU-11</i>						
TLU-7	Infill, Brownfield Re-development	1.2	1.3	13.4	Zero net costs or positive cost savings	<i>Pending</i>
TLU-8	Transit-Oriented Development					<i>Pending</i>
TLU-9	Smart Growth Planning, Modeling, Tools					<i>Pending</i>
TLU-10	Multimodal Transportation Bundle					<i>Pending</i>
TLU-11	Promote LEED for Neighborhood Development					<i>Pending</i>
TLU-12	Targeted Open Space and Croplands Protection	<i>Analyzed in Agriculture and Forestry TWG (F-1 and A-8)</i>				
TLU-13	Diesel Retrofits	<i>Incorporated as part of TLU-5</i>				
TLU-14	Truck Stop Electrification/Anti-Idling	0.4	0.7	6.3	\$4	<i>Unanimous Consent</i>
TLU-15	Intermodal Freight Initiatives	0.1	0.5	2.6	Not estimated	<i>Pending</i>
TLU-16	Lower Speed Limit for Commercial Trucks					<i>Pending</i>
	Options:					
	Trucks only (original)	0.2	0.3	2.8	\$51	
	All vehicles, 60 mph	0.6	0.7	7.3	\$83	
	All vehicles, 65 mph	0.3	0.4	3.9	\$53	
Accounting for Overlap Among Options		0.2	1.1	5.6		
Net Total All Options		3.0	6.7	49.4		
Additional Emissions Savings from Recent Actions (not included in forecast or in policy options above) <i>(National Renewable Fuel Standard)</i>		0.1	0.1	1.1		
Net Total All Options Plus Recent Actions		3.1	6.8	50.5		

Transportation and Land Use Sector

CCAG Policy Descriptions

The TLU sector includes emissions and mitigation opportunities related to vehicle technologies, fuel choices, transit options, and demand for transportation services.

TLU-1 State Clean Car Program

The CCAG recommends that New Mexico 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.

TLU-2 Low-Rolling Resistance Tires

The CCAG recommends that New Mexico 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.

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. 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.

TLU-3 Low-GHG Operation of State Fleet Vehicles

The CCAG recommends that New Mexico strengthen its commitment to reduce GHG emissions due to operation of the vehicles owned by the state by enacting 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-6 (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.

TLU-4 Pay-As-You-Drive Insurance

The CCAG recommends that New Mexico insurance regulations to allow Pay-As-You-Drive (PAYD) insurance, and initiate and promote an aggressive pilot of PAYD in 2008. PAYD insurance 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. Assuming this pilot recommended here 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.

TLU-5 Incentive/Disincentive Options Bundle

The CCAG recommends that New Mexico further study and develop policy options that create incentives for the purchase and operation of vehicles that emit low levels of GHGs (and disincentives for the purchase and operation of vehicles that emit high levels of GHGs). The range of policies to be studied and developed include:

- A multi-state “feebate” program, including the neighboring states of California and Arizona.
- 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.
- A consumer labeling program that provides buyers with better information on the GHG emissions of new vehicles.
- Incentives for diesel retrofits that 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.

TLU- 6 Alternative Fuels Use

The CCAG recommends that New Mexico should expand the availability and use of alternative fuels and expand the use of hybrid vehicles, low speed vehicles, and zero emission vehicles for transportation in New Mexico. The mechanisms for achieving this would be combination of a renewable fuels standard (RFS), financial incentives, outreach, and market-based mechanisms. The RFS would operate according to the table below.

Phase	Year	Percentage of Gasoline to be Replaced by Ethanol	Percentage of Diesel to be Replaced by Biodiesel
1	2009	5%	2%
2	2012	10%	10%
3	2020	20%	20%
4	2050	50%	30%

In the near term, the policy also targets increasing sales of hybrid vehicles and partial ZEVs, while sales of ZEVs are targeted to meet the longer-term goals. Plug-in electric vehicles equipped with batteries would also serve as storage capacity for wind and solar power through grid interconnection (V2G). The CCAG also recommends that New Mexico should build appropriate production capacity for renewables-generated electricity and hydrogen fuels for transportation purposes in New Mexico.

TLU-7 Infill, Brownfield Re-development

The CCAG recommends that New Mexico increase its efforts to reuse land that is already developed but is now vacant, underused, or even mildly polluted, and meet the growing demand by a larger number of households comprised of singles, working parents and single parents for housing located close to services, jobs and transit. New Mexico should move beyond current policies in this area, and:

- Use fiscal, tax and other financing mechanisms to remove barriers to / support recycling of existing buildings and underused land.
- Adapt planning policies and regulations to give infill and brownfield sites priority for development over sprawling sites at the edges of communities. Include in these adapted policies and regulations New Mexico government and educational units, so that state government buildings, universities, and public schools do not contribute to sprawl.

TLU-8 Transit-Oriented Development

The CCAG recommends that New Mexico expand efforts to supportive of building of compact development around transit stops and clustering employment centers around transit in ways that allow meet transportation needs to be met by foot, bicycle, or transit. New Mexico should promote and expand Transit-Oriented Development (TOD) with strong implementation of the policies recommended in The Report of the Governor's Task Force on Our Communities, Our Future:²

- *Tax Increment Financing (TIF) Districts:* The state can expand TIF programs through the extension of its credit resources.
- *State Funding Programs:* Provide state funds for affordable housing and parks, both of which help make TODs successful.

² "Livability! The Report of the Governor's Task Force on Our Communities, Our Future", January, 2005. <http://www.state.nm.us/clients/dfa/Files/LGD/PLAN/PDF/livability.PDF>.

- *Support of Local Governments:* Amend local government enabling laws and provide technical assistance to help local governments take maximum advantage of transit investments.
- *Location of State Facilities:* Locate state facilities (including schools and universities) near transit facilities.
- *State Targeting of Infrastructure Investments:* Legislatively appropriated capital outlay funds, the State Public Project Revolving Loan Fund, and other state-funded infrastructure initiatives should be used for projects that encourage walkable and traditional communities, and are supportive of transit.

TLU-9 Smart Growth Planning, Modeling, Tools

The CCAG recommends that New Mexico expand its efforts in the areas of Smart Growth planning, modeling, and tools, and thus allow, support, and encourage location-efficient growth in communities that are proximate to household needs and amenities (such as jobs, shopping, school, services, entertainment, etc.) as opposed to growth in areas that are not proximate and require greater travel distance and have less mode choice. Smart growth allows for mixed land uses, a range of housing opportunities, and multiple transportation options including pedestrian/bike access. These policies reduce GHG emissions by giving municipalities the tools they need to shift development patterns and reduce vehicle trips and total vehicle miles traveled, while avoiding mandates. Similar to TLU-8, the CCAG recommends that New Mexico should continue to implement, and expand, the Smart Growth-supportive policies recommended in The Report of the Governor's Task Force on Our Communities, Our Future (see TLU-8 above).

TLU-10 Multi-Modal Transportation Bundle

The CCAG recommends that New Mexico should implement the 2025 Statewide Multimodal Transportation Plan in ways that reduce GHG emissions. The New Mexico 2025 Statewide Multimodal Transportation Plan establishes objectives and implementation strategies that aim to shift the State's focus from roads to an integrated, multimodal system. New Mexico should put special emphasis on:

- Make GHG-optimal use of CMAQ funds;
 - Expand transit infrastructure (rail, bus, BRT);
 - Improve existing transit service and support facilities,
 - Improve transit promotion and marketing (including tax-free and employer-paid Commuter Benefits, and Parking Cash Out);
 - Improve bike and pedestrian infrastructure;
 - Explore additional commuter rail using existing rail corridors;
 - Review all proposed transportation projects for multi-modal flexibility (e.g., add or reserve room for BRT or light rail if feasible);
 - Conduct research into new transportation technologies and urban planning techniques;
- Support and promote policies that improve transportation system performance through non-transportation actions, such as a 4-day work-week and telecommuting.

TLU-11 Promote LEED for Neighborhood Development

The CCAG recommends that New Mexico recognize the lower emissions and other public costs of development that will meet “LEED-ND” standards. The LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. The “LEED for Neighborhood Development (LEED-ND)” rating system will integrate the principles of smart growth, urbanism, and green building into the first national standard for neighborhood design. LEED-ND will emphasize smart growth aspects and neighborhood design of development while incorporating a selection of the most important green building practices. LEED-ND ratings will include measurements of a development’s compact design, proximity to transit, mixed use, mixed housing type, and pedestrian- and bicycle- friendliness.³ New Mexico should:

- Support municipalities in quantifying the local benefits of LEED-ND developments, and lowering development fees appropriately.
- Require LEED-ND compliance for developments involving state facilities or funding.
- Support the New Mexico building and real estate industries and the non-profit US Green Building Council in promoting LEED-ND to the public and others.

TLU – 14, Truck Stop Electrification/Anti-Idling

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

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.

TLU-15 Intermodal Freight Initiatives

The CCAG recommends that New Mexico implement policies and programs that result in the shifting of the transport of freight goods from the roadway system to rail. This should include evaluating the feasibility of restoring abandoned rail lines to increase the attractiveness of using rail for local shipments.

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

³ <http://www.usgbc.org/LEED>

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. New Mexico currently has 2,151 miles of railroad in operation. In many cases, particularly for long distance freight, freight can be carried by rail more economically and at lower GHG emission levels than over the existing roadway system. This policy is designed to transfer a portion of the freight carried over the roadway system to rail wherever possible.

TLU-16 Reduced Speed Limit for Commercial Trucks

The CCAG recommends that New Mexico reduce the speed limit for commercial trucks to 60 mph by 2008 and to 55 mph by 2015. By reducing vehicle speed, fuel economy is increased, while reducing fuel consumption and CO2 emissions. This policy is targeted at reducing the speed limit for commercial trucks to 60 mph in the short term and to 55 mph in the long term.