



Catalog of State Actions Transportation and Land Use Working Group

A catalog of state-level, GHG-reducing actions and policy options prepared by the Center for Climate Strategies (CCS), the Office of the Governor, and South Carolina State Agencies based on actions undertaken or considered by South Carolina and other states, including regional, state, local and private actions.

Key To Future Rankings of Options in the Tables that Follow:

Potential Emission Reductions <u>1/</u>	Potential Cost or Cost Savings <u>1/ 2/</u>
High (H): At least .5 Million Metric Tons (MMT) carbon dioxide equivalent (CO ₂ e) per year by 2020 (~1% of current MT emissions)	High (H): \$50 per Metric Ton CO ₂ e (MTCO ₂ e) or above
Medium (M): From 0.1 to 0.5 MMT CO ₂ e per year by 2020	Medium (M): \$5-50/MTCO ₂ e
Low (L): Less than 0.1 MMT CO ₂ e per year by 2020, or 1 MMT CO ₂ e by 2050	Low (L): Less than \$5/MTCO ₂ e
Uncertain (U): Not able to estimate at this time	Uncertain (U): Not able to estimate at this time
<p><u>1/</u> Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.</p> <p><u>2/</u> Costs are denoted by a positive number. Cost savings (i.e., “negative costs”) are denoted by a negative number.</p>	

Definition of “Priorities for Analysis”:

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low:** Low priority options will be analyzed last, time and resources permitting.

Table 3 - Transportation and Land Use (TLU)

Option No.	GHG Reduction Policy Option	Priority for Analysis	Potential GHG Emissions Reduction	Potential Cost or Cost Savings	Ancillary Impacts, Feasibility Considerations	Notes
TLU-1 PASSENGER VEHICLE GHG EMISSION RATES						
TLU-1.1 VEHICLE TECHNOLOGY						
1.1.1	Tailpipe GHG Emission Standards					
1.1.2	ZEV/LEV-2 Implementation					
1.1.3	R&D on Low-GHG Vehicle Technology (e.g., fuel cell)					Hydrogen production and storage and automotive system integration- International Center for Automotive Research (CU-ICAR).
1.1.4	Add-on Technologies (Low Friction Oil, Low-Rolling Resistance Tires)					DHEC promotes low rolling resistance tires through the Southeast Diesel Collaborative.
TLU-1.2 VEHICLE OPERATION						
1.2.1	Enforce Speed Limits					

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1.2.2	Vehicle Maintenance, Driver Training					<p>Inaugural Car Care Event held for National Car Care month in Columbia in 2006, sponsored by DHEC and Richland and Lexington Counties. Protocol developed for local areas.</p> <p>DHEC's Green Driver program reaches most of the states drivers ed students (through schools) – 15,000-17,000 students annually.</p>
1.2.3	Transportation System Management					<p>Intelligent Transportation System- Statewide - SCDOT</p> <p>Traffic signalization projects are underway in Greenville and Columbia and are planned for Lexington.</p> <p>Smart Highways-voluntary transportation conformity demonstration in ozone deferred areas. (COATS, GPATS, SPATS, ANATS)</p> <p>Transportation Conformity demonstrated in the RFATS area.</p> <p>(Conformity demonstrates that transportation projects don't conflict with air quality goals)</p>

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TLU-1.3 INCENTIVES & DISINCENTIVES						
1.3.1	Procurement of Efficient Fleet Vehicles					Budget Control Board State Contract offers hybrids. Several counties have implemented purchasing policies to include hybrid vehicles and/or efficient vehicles.
1.3.2	Feebates (state-specific or regional)					
1.3.3	CO ₂ -based registration fees					
1.3.4	Tax Credits for Efficient Vehicles					SC offers tax incentives for plug-in hybrids. Under consideration: increasing credit for plug-in hybrid vehicles to \$2,000, sales tax rebate of up to \$300 for: high fuel economy vehicles (30 mpg city), electric hybrid, hydrogen-fueled vehicles. Sales tax rebate of up to \$500 for equipment to convert a conventional hybrid to a plug-in or convert conventional vehicles to run on alternative fuels.
1.3.5	Vehicle Scrappage					Kershaw County has a vehicle scrappage program. Greenville County is considering a “cash for clunkers” program.

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TLU-2 LAND USE AND LOCATION EFFICIENCY						
TLU-2.1 GENERAL						
2.1.1	Infill, Brownfield Re-development					DHEC revolving loan fund and state/fed tax incentives. The Central Midlands Council of Governments has identified 22 possible brownfields sites that could serve as stations for three future commuter rail and high-speed transit lines.
2.1.2	Transit-Oriented Development					Three rail corridors identified by feasibility study for Central Midlands COG (working on model TOD ordinances).

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2.1.3	Smart Growth Planning, Modeling, Tools					<p>H 3881 - Infrastructure Priority Investment Act (PIA) introduced and passed in the house last year. It would add a priority investment element to the comprehensive plan requirement, analyzing funds available for infrastructure, recommending projects and providing for coordination between local governments.</p> <p>The Town of Clover is developing a sector plan based on Duany Plater-Zyberg's Smartcode system. The code addresses transit-oriented and pedestrian-oriented design and promotes walkable developments built to the human scale.</p>

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2.1.3 cont.						<p>The planning firm of Duany Plater-Zyberg also developed a plan for the approx 150-acre State Hospital complex in downtown Columbia.</p> <p>Greenville County developed rules supportive of traditional neighborhood design, and Greenville was selected in 2005 to receive Smart Growth Implementation Assistance through the Smart Growth Leadership Institute.</p>
2.1.4	Targeted Open Space Protection					<p>Conservation Land Bank and several Land Trusts purchase conservation easements.</p> <p>Aiken Open Space forum is planning a network of parks, greenways and conservation easements.</p>
2.1.5	“Fix-it-First” Schools					<p>Gov. Sanford is directing state school construction funding to existing schools as well as investing new school construction dollars in established communities.</p>

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TLU-2.2 INCREASING LOW-GHG TRAVEL OPTIONS						
2.2.1	Make full use of CMAQ funds					<p>CMAQ funds for the York area for 2004-2006 were spent this year with the exception of \$400,000. Solicitation for new projects for 2007 funding to take place in spring 2007.</p> <p>SCDOT - for current fiscal year using remaining funds for SHEP trucks.</p>
2.2.2	Improve Transit Service (frequency, convenience, quality)					<p>Smart Ride in Columbia area may be extended to Greenville.</p> <p>Lower Savannah RTA: Allendale Scooter & Bamberg Handy-Rides (coordinated human service agency vehicles with general public transportation as available)</p> <p>Where no transit has been available, Dial-a-Ride service will start in the City of Rock Hill (expanded from York County).</p> <p>Proposed legislation for greater percentage of gas tax to go to transit.</p> <p>CMRTA in Columbia offers free rides on Smartride buses on ozone action days.</p>

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						<p>Charleston Area Regional Transportation Authority’s new Express service began Jan. 22, 2007. There were more than 1,600 riders during the first week, and about 700 more tried the Express in its second week of operation.</p> <p>York County - 82x Express Bus service to Charlotte. Started in 2001, 214 daily riders.</p>
2.2.3	Transit Marketing and Promotion					League of Women Voters’ transit post card campaign.
2.2.4	Bike and Pedestrian Infrastructure					<p>Spartanburg’s Hub City Connector.</p> <p>Hilton Head system.</p> <p>Greenville’s greenway project.</p> <p>Charleston East Bay Bike-Ped project.</p> <p>Georgetown – Waccamaw Neck Bikeway – 10 of 27 miles completed.</p> <p>Columbia-Three Rivers Greenway awaiting further development.</p> <p>Funded CMAQ projects in Rock Hill include two trail projects. Another bike/ped project awaits funding.</p>

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2.2.5	Expand Transit Infrastructure (rail, bus, BRT)					<p>Low Country Regional Transit is planning for 25-passenger buses that will take tourists, workers and locals along a number of stops on U.S. 278.</p> <p>The RYC Transit Study is examining possible transit connections from Rock Hill to Charlotte.</p> <p>Smartride offers limited stop commuter bus service between Columbia and the Lugoff/Camden and Newberry areas</p> <p>CARTA Express offers limited stop commute alternative that connects area residents into downtown Charleston</p> <p>York County - 82x Express Bus service to Charlotte. Started in 2001, 214 daily riders.</p>
2.2.6	HOV lanes					<p>Ongoing HOV study includes York County. Evaluations in Greenville and Spartanburg Counties concluded that HOV lanes would not be beneficial.</p>
2.2.7	"Fix-it-First"					

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2.2.8	Transit Prioritization (signal prioritization, HOV lanes)					
2.2.9	Telecommute and Live-Near-Your-Work					Some state agencies have telecommuting policies.
2.2.10	Car sharing					
2.2.11	E-Commerce					State Govt. Electronic deposit
2.2.12	Promoting use of alternative Commuting options					TABFTE – online outreach program encouraging employees to use alternatives to single occupant vehicle travel. Park and Ride lots in Lexington County are at capacity. Considering other suitable lots (transit service suspended at this time.) DHEC's BAQ is a "Best Workplace for Commuters" and promotes the program in the state. The Savannah River Site has an electronic carpool network.
TLU-2.3 INCENTIVES & DISINCENTIVES						
2.3.1	“Commuter Choice”/Parking Cash Out					City of Charleston employees may trade in parking spaces for free bus passes.
2.3.2	VMT Tax					

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2.3.3	Pay As You Drive Insurance					
2.3.4	Increased Fuel Tax (w/ targeted use of revenue towards travel alternatives)					
2.3.5	Location-Efficient Mortgages					
2.3.6	Congestion Pricing (or tolls) (w/ targeted use of revenue towards travel alternatives)					
2.3.7	Parking Pricing or Supply Restrictions					
2.3.8	Transit Repositioning					
2.3.9	Transit Pricing Incentives					
2.3.10	VMT/GHG Offset Requirements for Large Developments					
2.3.11	Benefits for Low GHG Vehicles (preferential parking, use of HOV lanes)					

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TLU-2.4 FUEL MEASURES						
2.4.1	Low-GHG Fuel Standard (e.g., renewable)					
2.4.2	Low-GHG Fuel for State Fleets (e.g., CNG, biodiesel)					<p>Department of Education plans to begin fueling its buses with biodiesel (May 2007.)</p> <p>Executive Order- Whenever practical and economically feasible, all state agencies operating alternative fuel vehicles are required to use alternative fuels in those vehicles.</p> <p>Proposed legislation would require state-owned fueling facilities to provide fuel containing at least 5% biodiesel by January 2008.</p>

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2.4.3	Biofuel expansion (biodiesel, CNG, LPG, cellulosic ethanol)					<p>Government fleet sites for alternative fuels are available.</p> <p>SC Alternative Energy bills establish:</p> <ul style="list-style-type: none"> • rebate for purchase of flex-fuel vehicles • income tax credit for production of biofuels • income tax credit for purchase of fueling equipment for biofuels • retailer tax rebates for sale of E85 and B20 <p>State contract provides for biodiesel purchases</p> <p>Under consideration:</p> <ul style="list-style-type: none"> • Incentive payments to wholesalers for sale of biodiesel • Funding for an alternative fuel education and awareness program

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						<p>Tax credits for research for development of cellulosic ethanol and algae-derived biodiesel</p> <p>Funding for upgrade of biodiesel and ethanol testing equipment at SC Dept. of Ag.</p> <p>Tax credits for ethanol facilities using feedstock other than corn, and biodiesel facilities using a feedstock other than soy oil</p> <p>Tax credits for constructing or renovating buildings for the production of renewable fuel</p> <p>Renewable energy revolving grant and loan programs</p>

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2.4.4	Alternative Fuel Infrastructure Development					<p>Aggressively pursuing hydrogen technology</p> <p>South Carolina Biomass Council is exploring potential of biomass fuel</p> <p>Alt fuel network developed through the Palmetto State Clean Fuels Coalition. 32 E-85 fueling locations, 40 B20 fueling locations. Working with fed grant program, more stations to be added. Biofuels storage and distribution facility in development (Aiken)</p> <p>SC is 2nd in the nation for number of biodiesel pumps and 7th in the nation for ethanol pumps</p> <p>Plant expansion in Estil to provide soy bean oil for biodiesel production.</p>
TLU-3 FREIGHT						
TLU-3.1 VEHICLE TECHNOLOGY						
3.1.1	Port Improvements					State port authority switching to electric cranes.
3.1.1	Vehicle Technology Improvements (e.g., aerodynamics)					

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3.1.2	R&D on Low-GHG Vehicle Technology					
3.1.3	Low-sulfur diesel					The State promotes contract language to require clean diesel technology for construction.
3.1.4	Black carbon control technologies (e.g., use of particulate traps, other complementary technologies)					
TLU-3.2 VEHICLE OPERATION						
3.2.1	Freight Logistics Improvements/GIS					
3.2.2	Enforce Speed Limits					
3.2.3	Improve Traffic Flow					State Port authority adjusted operating hours to reduce truck idling.
3.2.4	Increased Size & Weight of Trucks					
3.2.5	Increase the Number of Rest Areas					
3.2.6	Pre-clearance at Scale Houses					
3.2.7	Truck Stop Electrification					52-space truck stop electrification site in Anderson County.

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3.2.8	Enforce Anti-Idling					<p>Duke Power has agreed to reduce idling time for it's vehicles to 30 minutes during ozone season in Anderson County.</p> <p>15 trucks in Lexington County have automatic shut-off technology (ACERT) set for 5 minutes.</p> <p>Clean School Bus USA grant for anti-idling hardware.</p>
TLU-3.3 INCREASING LOW-GHG TRAVEL OPTIONS						
3.3.1	Intermodal Freight Initiatives					
3.3.2	Feeder Barge Container Service					
TLU-3.4 INCENTIVES & DISINCENTIVES						
3.4.1	Procurement of Efficient Fleet Vehicles (public, private or other)					
3.4.2	Incentives to Retire or Improve Older Less Efficient Vehicles					
3.4.3	Maintenance and Driver Training					
3.4.4	Increased Truck Tolls or Highway User Fees					

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TLU-4 INTERCITY TRAVEL: AVIATION, HIGH SPEED RAIL, BUS						
4.1	High-speed Rail					
4.2	Integrated Aviation, Rail, Bus Networks					Clemson Area Transit is considering developing a route to GSP Airport.
4.3	Aircraft emissions					
4.4	Airport Ground Equipment					
TLU-5 OFF-ROAD VEHICLES (CONSTRUCTION EQUIPMENT, OUT-BOARD MOTORS, ATVS, ETC)						
5.1	Incentives for Purchase of Efficient Vehicles/Equipment					
5.2	Improved Operations, Operator Training					
5.3	Maintenance Improvements					
5.4	Increased Use of Alternative Fuels or Low Sulfur Diesel					