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## Catalog of State GHG Reduction Policy Actions Transportation and Land Use (TLU)

A catalog of state-level, greenhouse gas (GHG)-reducing actions and policy options prepared by the Center for Climate Strategies (CCS) and the Kentucky Climate Action Plan Council, based on actions undertaken or considered in statewide climate change action plans by multi-stakeholder groups in a wide cross-section of U.S. states and by state, local, and private participants.

### Key to Future Rankings of Options in the Tables That Follow:

| Potential GHG Emission Reductions <sup>1</sup>  | Potential Cost or Cost Savings <sup>1, 2</sup>                                       |
|---|--|
| <b>High (H):</b> At least 1.0 million metric tons (MMt) carbon dioxide equivalent (CO <sub>2</sub> e) per year by 2020  | <b>High (H):</b> \$50 per metric ton CO <sub>2</sub> e (tCO <sub>2</sub> e) or above |
| <b>Medium (M):</b> From 0.1 to 1.0 MMtCO <sub>2</sub> e per year by 2020  | <b>Medium (M):</b> \$5 to \$50/tCO <sub>2</sub> e                                    |
| <b>Low (L):</b> Less than 0.1 MMtCO <sub>2</sub> e per year by 2020, or 1 MMtCO <sub>2</sub> e by 2050  | <b>Low (L):</b> Less than \$5/tCO <sub>2</sub> e                                     |
| <b>Uncertain (U):</b> Not able to estimate at this time   | <b>Uncertain (U):</b> Not able to estimate at this time                              |
| <sup>1</sup> Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently of other measures. |  |
| <sup>2</sup> Costs are denoted by a positive number. Cost savings (i.e., “negative costs”) are denoted by a negative number.  |  |

**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.

***Important Note: The state actions are numbered in this catalog solely for convenience in referencing them. Their numbers do NOT reflect a ranking or prioritization of the actions.***

## Transportation and Land Use (TLU)

*Note that this listing will be developed more fully during the TLU Technical Work Group (TWG) process. TWG members are encouraged to provide input on policies and programs in place in Kentucky to assist in defining baselines. The “Notes” column should be used to record recently enacted policies and programs in Kentucky relevant to state actions in the catalog.*

| Option No.   | Greenhouse Gas (GHG) Reduction Policy Option   | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations   | Priority for Analysis | Notes / Related Actions in Kentucky   |
|--------------|--|--|--------------|---|-----------------------|---|
| <b>TLU-1</b> | <b>Light Duty Vehicle: Technology and Operation</b>  |  |              |   |                       |   |
| 1.1a         | Clean Car Program (Pavley Standards)   | H  | L            | EPA approved. Implementation in 2010. Unlikely to be a priority now that EPA has linked federal and California standards. |                       | Kentucky 7-Point Strategy for Energy Independence:<br><br>Transportation energy efficiency programs will contribute another 2% reduction representing energy savings corresponding to approximately 500 million gallons of motor fuel annually. |
| 1.1b         | California Cars  | H  | L            |   |                       |   |
| 1.2          | Fuel-Efficient Tires   | L  | L            |   |                       |   |
| 1.3          | Black Carbon Control Technologies (e.g., Use of Particulate Traps, Other Complementary Technologies) |  |              | Trapping particulates from diesel engines.  |                       |   |

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|------------|--|--|-------------------|--|-----------------------|---|
| 1.4        | Procurement of Low-GHG Fleet Vehicles (Fuel Efficiency, Alternative Fuel)                                      | L  | U                 | EPA SmartWay program encourages state participation. |                       | Kentucky 7-Point Strategy for Energy Independence:<br><br>Kentucky will improve the energy efficiency of state-supported facilities and the fleet fuel efficiency of state-owned vehicles. State government will aggressively pursue achieving the requirements outlined in Sections 4–8, House Bill 2 and seek other opportunities that will reduce the energy consumed by all state-financed or state-owned buildings and vehicles. |
| 1.5        | R&D on Low-GHG Vehicle Technology (e.g., Fuel Cells)   | U  | L                 | Probably best coupled with federal dollars.          |                       |   |
| 1.6        | Lower and/or Enforce Speed Limits  | H and L                                  | M                 |  |                       |   |
| 1.7        | Vehicle Maintenance and Driver Education (MPG Info, Operating for Maximum Efficiency, Tire Type and Inflation) | L  | Less than - \$100 | e.g., tire inflation, eco-driver training.           |                       |   |

| Option No.   | Greenhouse Gas (GHG) Reduction Policy Option   | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky                |
|--|--|--|--------------|---|-----------------------|--|
| 1.8  | Reduce Vehicle Miles Traveled  |  |              | Focus on transit planning and incentives. |                       |  |
| 1.9  | Anti-Idling Enforcement Measures for LDV   |  |              |   |                       |  |
| <b>TLU-2 Light Duty Vehicle Incentives and Disincentives</b> |  |  |              |   |                       |  |
|  | Financial incentives for buying low-GHG vehicles<br>-Feebates (State-Specific or Regional)<br>-Tax credits for low-GHG vehicles and/or AFVs, including electric vehicles | H  | L            |   |                       |  |
| 2.1  | Feebates (State-Specific or Regional)  | M  | M            |   |                       |  |
| 2.2  | CO2-Linked Registration Fees   | L  | M            |   |                       |  |
| 2.3  | Tax Credits for Low-GHG Vehicles (Tax Rebates for Fuel Efficiency, Alternative-Fuel Vehicles)  | L  | M            |   |                       | Kentucky 7-Point Strategy for Energy Independence. |
| 2.4  | Incentives for Low-GHG Vehicles (Preferential Parking, Use of HOV Lanes, Lower Tolls)  |  |              |   |                       |  |

| Option No. | Greenhouse Gas (GHG) Reduction Policy Option                                       | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky |
|------------|--|--|--------------|---|-----------------------|-------------------------------------|
| 2.5        | Tax Credits or Incentives to Retire or Improve Older High-GHG Vehicles (All Types) |  |              |   |                       |                                     |
| 2.6        | Vehicle Scrappage  |  |              |   |                       |                                     |
| 2.7        | Establish a Fleet Replacement Grant Program  |  |              |   |                       |                                     |
| 2.8        | Provide a Tax Incentive for Adult Bicycles   |  |              |   |                       |                                     |
| 2.9        | Support Alternative Travel in the Advertising Mainstream                           |  |              |   |                       |                                     |
| 2.10       | Adopt and/or Enforce Anti-Idling Regulations for Light-Duty Vehicles               |  |              |   |                       |                                     |

| Option No.                                       | Greenhouse Gas (GHG) Reduction Policy Option                               | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky   |
|--|--|--|--------------|---|-----------------------|---|
| <b>TLU-3 Alternative Fuel – Related Measures</b> |  |  |              |   |                       |   |
| 3.1  | Low-GHG Fuel Standard (e.g., Renewables, Such as Ethanol and/or Biodiesel) | M  | H            |   |                       | <p>Kentucky 7-Point Strategy for Energy Independence:<br/>By 2025, Kentucky will derive from biofuels 12% of its motor fuels demand (775 million gallons per year, which represents approximately 20% of Kentucky’s current transportation fuels demand), while continuing to produce safe, abundant, and affordable food, feed, and fiber.<br/>This standard intentionally exceeds the federal standard established by Congress in the EISA 2007 legislation and supporting regulations. It seeks not only to shift fuel sources but also to establish a broader standard of sustainability for transportation fuel sources.</p> |
| 3.2  | Fuel Quality Standards   |  |              |   |                       |   |

| Option No. | Greenhouse Gas (GHG) Reduction Policy Option | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky  |
|------------|--|--|--------------|---|-----------------------|--|
| 3.3        | Low-GHG Fuel Mandates for State/Local Fleets |  |              |   |                       | <p>Kentucky 7-Point Strategy for Energy Independence:</p> <p>Kentucky will establish an escalating renewable fuel standard (RFS) for the state vehicle fleet.</p> <p>Establish an escalating RFS for the state vehicle fleet.</p> <ul style="list-style-type: none"> <li>• The state will establish an initial RFS of 10%, or 560,000 gallons (10% of an estimated 5.6 million gallons consumed annually by all state fleet vehicles) for E10 biofuel.</li> <li>• The state will require all eligible fueling stations under government contract to provide, at a minimum, E10 gasoline and B2 biodiesel by 2012.</li> </ul> |

| Option No. | Greenhouse Gas (GHG) Reduction Policy Option   | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky  |
|------------|--|--|--------------|---|-----------------------|--|
| 3.4        | Alternative-Fuel Production Incentives (Reduced Fuel Taxes, Production Tax Credits, Loans, etc.) |  |              |   |                       | <p>2007(s) 1 HB 1 34 45A.625 Procurement strategy for greater use of alternative-fuel motor vehicles—Reports.</p> <p>Kentucky 7-Point Strategy for Energy Independence:</p> <p>Goal: By 2025, Kentucky will derive from biofuels 12% of its motor fuels demand (775 million gallons per year, which represents approximately 20% of Kentucky’s current transportation fuels demand), while continuing to produce safe, abundant, and affordable food, feed, and fiber.</p> |

| Option No. | Greenhouse Gas (GHG) Reduction Policy Option  | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky   |
|------------|---|--|--------------|---|-----------------------|---|
| 3.5        | Targeted State Fuel Procurement to Encourage Alternative Fuel Production (Pennsylvania Example) |  |              |   |                       | Kentucky 7-Point Strategy for Energy Independence:<br><br>Incentives will be created to encourage production, distribution, and demand for biofuels in Kentucky in an environmentally sustainable manner. |
| 3.6        | Alternative-Fuel Infrastructure Development   |  |              |   |                       |   |

| Option No.   | Greenhouse Gas (GHG) Reduction Policy Option                                | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky   |
|--|---|--|--------------|---|-----------------------|---|
| 3.7  | Research and Development for a Full Range of Renewable Transportation Fuels | L  | U            |   |                       | <ul style="list-style-type: none"> <li>• 2007 (s) 1 HB 1 12 141.421 Tax incentives for alternative fuel, gasification, and renewable energy facilities.</li> <li>• 2007 (s) 1 HB 1 20 141.422 Definitions for KRS 141.422 to 141.425.</li> <li>• 2007 (s) 1 HB 1 21 141.423 Nonrefundable credit for biodiesel producer, biodiesel blender, or renewable diesel producer.</li> <li>• 2008 139 HB 2 22 141.424 Biodiesel credit distribution for pass-through entities.</li> <li>• 2007 (s) 1 HB 1 24 141.4242 Nonrefundable credit for producers of ethanol.</li> <li>• 2007 (s) 1 HB 1 23 141.4244 Nonrefundable credit for producers of cellulosic ethanol.</li> <li>• 2007 (s) 1 HB 1 25 141.4246 Ethanol or cellulosic ethanol credit distribution for pass-through entities.</li> <li>• 2007 (s) 1 HB 1 26 141.4248 Transfer of unused ethanol or cellulosic ethanol tax credit caps established by KRS 141.4242 and 141.4244.</li> <li>• 2005 168 HB 272 139 141.425 Authorization for administrative regulations to administer biodiesel credit</li> </ul> |
| Kentucky<br><a href="http://www.kyclimatechange.us">www.kyclimatechange.us</a> | Climate Action Plan Council   |  |              | 11  |                       | Center for Climate Strategies<br><a href="http://www.climatestrategies.us">www.climatestrategies.us</a>   |

| Option No.                                    | Greenhouse Gas (GHG) Reduction Policy Option   | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky |
|---|--|--|--------------|---|-----------------------|-------------------------------------|
| 3.8   | Promote the use of clean diesel and clean diesel fuels   |  |              |   |                       |                                     |
| 3.9   | Promote Natural Gas and High-Efficiency Vehicles   |  |              |   |                       |                                     |
| <b>TLU-4 Land Use and Location Efficiency</b> |  |  |              |   |                       |                                     |
| 4.1   | Infill, Brownfield Redevelopment   |  |              |   |                       |                                     |
| 4.2   | Transit-Oriented Development   |  |              |   |                       |                                     |
| 4.3   | Smart Growth Planning, Modeling, and Tools   |  |              |   |                       |                                     |
| 4.4   | Targeted Open-Space Protection, including supporting natural resource conservation in outlying areas<br>-Balance Economic Development With Agriculture, Protection of Natural Resources, and Preservation of Rural Character |  |              |   |                       |                                     |

| Option No.   | Greenhouse Gas (GHG) Reduction Policy Option   | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky |
|--|--|--|--------------|---|-----------------------|-------------------------------------|
| 4.5  | "Fix-It-First" and Location-Efficient Funding Strategies   |  |              |   |                       |                                     |
| 4.6  | Land Use, Zoning, Tax, and Building Code Reform  |  |              |   |                       |                                     |
| 4.7  | State Congressional Advocates for Federal Action   |  |              |   |                       |                                     |
| 4.8  | Use of Flexible Federal Transportation Funding   |  |              |   |                       |                                     |
| 4.9  | Downtown Revitalization  |  |              |   |                       |                                     |
| 4.10   | Balance Economic Development With Agriculture, Protection of Natural Resources and Preservation of Rural Character |  |              |   |                       |                                     |
| <b>TLU-5 Transportation Efficiencies in Planning Infrastructure, and Use</b> |  |  |              |   |                       |                                     |
| 5.1  | Transportation System Management   | L  | U            |   |                       |                                     |
| 5.2  | Improve Transit Service (Frequency, Convenience, and Quality)  | M  | M            |   |                       |                                     |

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|------------|---|--|--------------|---|-----------------------|-------------------------------------|
| 5.3        | Transit Marketing, Promotion, and Pricing Incentives                                  | M  | M            |   |                       |                                     |
| 5.4        | Expand Transit Infrastructure (Rail, Bus, Bus Rapid Transit)                          | L  | L            |   |                       |                                     |
| 5.5        | Transit Prioritization (Signal Prioritization, HOV Lanes)                             | M  | L            |   |                       |                                     |
| 5.6        | Create Regional Multimodal Transportation Centers                                     | M  | M            |   |                       |                                     |
| 5.7        | Bike and Pedestrian Infrastructure, and Comprehensive Municipal Bike/Pedestrian Plans | L  | L            |   |                       |                                     |
| 5.8        | High-Occupancy Vehicle Lanes  | M  | M            |   |                       |                                     |
| 5.9        | Van Pooling and Car Pooling   | M  | L            |   |                       |                                     |
| 5.10       | Park-and-Ride Lots  | L  | L            |   |                       |                                     |
| 5.11       | Car-Sharing Programs  | L  | L            |   |                       |                                     |
| 5.12       | Telecommute, Live Near Your Work, and Compressed Work Week                            | M  | L            |   |                       |                                     |

| Option No.                                    | Greenhouse Gas (GHG) Reduction Policy Option                         | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky |
|---|--|--|--------------|---|-----------------------|-------------------------------------|
| 5.13  | Require Government Agencies to Use Telecommuting                     | M  | L            |   |                       |                                     |
| 5.14  | Telecommuting Centers, Support, and Incentives                       | L  | L            |   |                       |                                     |
| 5.15  | Make Full Use of Federal Congestion Mitigation and Air Quality Funds | L  | L            | CMAQ funds are available.                 |                       |                                     |
| 5.16  | Thorough Analysis of Future Infrastructure Capacity                  |  |              |   |                       |                                     |
| 5.17  | Traffic Calming  | M  | L            |   |                       |                                     |
| 5.18  | Connectivity   |  |              |   |                       |                                     |
| <b>TLU-6 Low GHG Travel Option Incentives</b> |  |  |              |   |                       |                                     |
| 6.1   | Commuter Choice Programs/Parking Cash-Out                            | L  | L            |   |                       |                                     |
| 6.2   | Adopt Best Work Places for Commuters Policies                        | M  | H            |   |                       |                                     |
| 6.3   | Issue Free Bus Passes to Downtown Workers, Students, and Retirees    | L  | M            |   |                       |                                     |
| 6.4   | Transit Pricing Incentives   | L  | H            |   |                       |                                     |

| Option No. | Greenhouse Gas (GHG) Reduction Policy Option                                   | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky |
|------------|--|--|--------------|---|-----------------------|-------------------------------------|
| 6.5        | Free Downtown Parking for Car Poolers  | L  | M            |   |                       |                                     |
| 6.6        | Reserve Parking Spaces for High-Occupancy Vehicles and Car-Share Programs      | L  | L            |   |                       |                                     |
| 6.7        | Guaranteed Ride Home   |  |              |   |                       |                                     |
| 6.8        | Benefits for Low-GHG Vehicles (Preferential Parking, Use of HOV Lanes)         | M  | L            | Preferential parking, use of HOV lanes.   |                       |                                     |
| 6.10       | Increased Fuel Tax (With Targeted Use of Revenue Toward Travel Alternatives)   | M  | M            |   |                       |                                     |
| 6.12       | E-Commerce Incentives  | L  | L            |   |                       |                                     |
| 6.13       | Congestion Pricing (With Targeted Use of Revenue Toward Travel Alternatives)   | M  | M            |   |                       |                                     |
| 6.14       | Emission-Based Tolls (With Targeted Use of Revenue Toward Travel Alternatives) | M  | L            |   |                       |                                     |

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|------------|--|--|--------------|--|-----------------------|-------------------------------------|
| 6.15       | Urban and Intercity Road Tolls (With Targeted Use of Revenue Toward Travel Alternatives)   | M  | M            |  |                       |                                     |
| 6.16       | Cordon Pricing and/or Allocations  | M  | M            | Area pricing or controlled entry to high-congestion areas. |                       |                                     |
| 6.17       | Parking Pricing, Excise Tax and/or Supply Restrictions                                     | L  | L            |  |                       |                                     |
| 6.18       | VMT/GHG Offset Requirements for Large Developments   | M  | M            |  |                       |                                     |
| 6.19       | Research the Impact of GHG Emission Reduction Strategies on Transportation Revenue Sources | M  | L            |  |                       |                                     |
| 6.20       | Research Alternative Transportation Funding That Creates Incentives to Drive Less          | H  | L            |  |                       |                                     |
| 6.21       | CO <sub>2</sub> Conformity Requirements  | M  | L            |  |                       |                                     |

| Option No.                                 | Greenhouse Gas (GHG) Reduction Policy Option                          | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations  | Priority for Analysis | Notes / Related Actions in Kentucky |
|--|---|--|--------------|--|-----------------------|-------------------------------------|
| 6.22                                       | Encourage Coordination and/or Consolidation of Transit Agencies       |  |              |  |                       |                                     |
| 6.23                                       | Cyclist Education   |  |              |  |                       |                                     |
| <b>TLU-7 Heavy Duty Vehicle Technology</b> |   |  |              |  |                       |                                     |
| 7.1  | Freight Vehicle Technology Improvements (e.g., Aerodynamics)          | M  | L            | EPA emission standards took effect in 2007. See EPA SmartWay program for examples. |                       |                                     |
| 7.2  | R&D on Low-GHG Vehicle Technology                                     | M  | M            |  |                       |                                     |
| 7.3  | Black Carbon Control Technologies                                     | L  | L            |  |                       |                                     |
| 7.4  | Facilitate Adoption of New Clean Technologies—Rail and Marine Engines | L  | M            |  |                       |                                     |
| 7.5  | Tire Technologies   | L  | L            | Single-wide, aluminum wheels, low-rolling-resistance radials, auto inflation.      |                       |                                     |
| <b>TLU-8 Heavy Duty Vehicle Operations</b> |   |  |              |  |                       |                                     |
| 8.1  | Freight Logistics Improvements/GIS                                    | L  | L            |  |                       |                                     |
| 8.2  | Lower and/or Enforce Speed Limits                                     | L  | L            |  |                       |                                     |
| 8.3  | Improve Traffic Flow  | M  | M            |  |                       |                                     |

| Option No.  | Greenhouse Gas (GHG) Reduction Policy Option                       | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations                          | Priority for Analysis | Notes / Related Actions in Kentucky |
|---|--|--|--------------|--|-----------------------|-------------------------------------|
| 8.4   | Allow Increased Size and Weight of Trucks                          | L  | L            | Fuel-efficient goods movement vs. road wear and tear.              |                       |                                     |
| 8.5   | Pre-Clearance at Scale Houses                                      | L  | L            |  |                       |                                     |
| 8.6   | Truck Stop Electrification   | M  | L            |  |                       |                                     |
| 8.7   | Adopt and/or Enforce Anti-Idling Regulations for Buses/Trucks      | M  | L            | Include voluntary programs with incentives, state lead by example. |                       |                                     |
| 8.8   | Clean Freight Operating Improvements                               | L  | L            |  |                       |                                     |
| 8.9   | Freight Villages/ Consolidation Centers                            | L  | M            |  |                       |                                     |
| <b>TLU-9 Increasing Low GHG Heavy Duty Transportation Options</b> |  |  |              |  |                       |                                     |
| 9.1   | Intermodal Freight Initiatives                                     | M or H                                   | L            |  |                       |                                     |
| 9.2   | Feeder Barge Container Services                                    | L  | L            |  |                       |                                     |
| 9.3   | Increase Rail Capacity and Address Rail Freight System Bottlenecks | M or H                                   | L            |  |                       |                                     |

| Option No.   | Greenhouse Gas (GHG) Reduction Policy Option  | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky |
|--|---|--|--------------|---|-----------------------|-------------------------------------|
| 9.4  | Shift Freight Movements From Truck to Rail  | M  | M            |   |                       |                                     |
| 9.5  | Promote Strategies to Move Freight in More GHG-Efficient Ways                                       | L  | M            |   |                       |                                     |
| 9.6  | Promote Consumption of Locally Produced Goods and Services  |  |              |   |                       |                                     |
| <b>TLU-10 Heavy Duty Vehicle Incentives and Disincentives</b>                |   |  |              |   |                       |                                     |
| 10.1   | Procurement of Efficient Heavy-Duty Fleet Vehicles  | L  | H            |   |                       |                                     |
| 10.2   | Tax Credits and Incentives for New Equipment or to Retire or Improve Older, Less Efficient Vehicles | M  | M            |   |                       |                                     |
| 10.3   | Maintenance and Driver Training   | L  | L            |   |                       |                                     |
| 10.4   | Increased Emission-Based Truck Tolls or Highway User Fees   | L  | L            |   |                       |                                     |
| <b>TLU-11 Intercity Passenger Travel: Aviation, High Speed Rail, and Bus</b> |   |  |              |   |                       |                                     |
| 11.1   | High-Speed Rail   | L  | H            |   |                       |                                     |

| Option No.   | Greenhouse Gas (GHG) Reduction Policy Option                                 | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations  | Priority for Analysis | Notes / Related Actions in Kentucky |
|--|--|--|--------------|--|-----------------------|-------------------------------------|
| 11.2   | Integrated Aviation, Rail, Bus Networks: Planning, Governance and Investment | M  | H            |  |                       |                                     |
| 11.3   | Aircraft Emission Reductions   | U  | U            | Seek to influence federal policy.  |                       |                                     |
| 11.4   | Airport Operations and Ground Equipment                                      | L  | H            |  |                       |                                     |
| 11.5   | Intercity Bus Incentives and Subsidies                                       | L  | M            |  |                       |                                     |
| 11.6   | Improved Passenger Rail Service  | L  | H            |  |                       |                                     |
| <b>TLU-12 Off Road Vehicles: Construction Equipment, Outboard Motors, ATVs</b> |  |  |              |  |                       |                                     |
| 12.1   | Incentives for Purchase of Efficient Vehicles and Equipment                  | M  | M            | Includes airport service vehicles, construction, industrial, lawn and garden, agriculture, light commercial, logging, recreational marine. |                       |                                     |
| 12.2   | Improved Operations and Operator Training                                    | L  | L            |  |                       |                                     |
| 12.3   | Increased Use of Alternative Fuels or Low-Sulfur Diesel                      | H  | L            |  |                       |                                     |

| Option No.  | Greenhouse Gas (GHG) Reduction Policy Option                                     | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations   | Priority for Analysis | Notes / Related Actions in Kentucky |
|---|--|--|--------------|---|-----------------------|-------------------------------------|
| <b>TLU-12 Off Road Vehicles: Construction Equipment, Outboard Motors, ATVs, continued</b> |  |  |              |   |                       |                                     |
| 12.4  | Adopt Green Port Strategy  | M  | M            | Port-dwelling and cargo-handling equipment. |                       |                                     |
| 12.5  | Marine Vessel Efficiency Improvements  |  |              |   |                       |                                     |
| 12.6  | Operational Efficiencies to Reduce Ocean-Going Vessel Hoteling Emissions         |  |              |   |                       |                                     |
| 12.7  | After-Treatment of Ocean-Going Vessel Stack Emissions                            |  |              |   |                       |                                     |
| 12.8  | Truck Operational Efficiencies at Port Terminals                                 |  |              |   |                       |                                     |
| 12.9  | Electrification of Select Truck Activities at Port Terminals                     |  |              |   |                       |                                     |
| 12.10   | Cold-Ironing (e.g., Shore Power) of Ocean-Going Vessels During Hoteling at Berth |  |              |   |                       |                                     |
| 12.11   | Accelerated Truck Replacement/Retrofits.   |  |              |   |                       |                                     |

| Option No. | Greenhouse Gas (GHG) Reduction Policy Option                         | Potential GHG Emissions Reduction (2020) | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in Kentucky |
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| 12.12      | Accelerated Replacement and/or Retrofits of Cargo-Handling Equipment |  |              |   |                       |                                     |
| 12.13      | Vessel Speed Reduction for Transiting Ocean-Going Vessels            |  |              |   |                       |                                     |
| 12.14      | Idling Time Reduction for Vessels                                    |  |              |   |                       |                                     |
| 12.15      | Locomotive Idling Reduction  | L  | M            |   |                       |                                     |
| 12.16      | Idling Reduction Requirements for Construction Equipment             |  |              |   |                       |                                     |

ASTM = American Society of Testing Materials; ATVs = all-terrain vehicles; B2 = fuel mixture of 2% biodiesel and 98% gasoline; CCI = Cross-Cutting Issues; CO<sub>2</sub> = carbon dioxide; CMAQ = Congestion Management and Air Quality; E10 = fuel mixture of 10% ethanol and 90% gasoline; EPA = U.S. Environmental Protection Agency; GHG = greenhouse gas; GIS = geographic information system; HB = House Bill; HOV = high-occupancy vehicle; LCF = low-carbon fuel; LEED = Leadership in Energy and Environmental Design; MPG = miles per gallon; R&D = research and development; RCI = Residential, Commercial, and Industrial; RFS = renewable fuel standard; TWG = Technical Work Group; VMT = vehicle miles traveled.