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Catalog of State GHG Reduction Policy Actions Residential, Commercial, and Industrial (RCI)

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 state-wide 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 ¹	Potential Cost or Cost Savings ^{1, 2}
High (H): At least 1.0 million metric tons (MMt) carbon dioxide equivalent (CO ₂ e) per year by 2020	High (H): \$50 per metric ton CO ₂ e (tCO ₂ e) or above
Medium (M): From 0.1 to 1.0 MMtCO ₂ e per year by 2020	Medium (M): \$5 to \$50/tCO ₂ e
Low (L): Less than 0.1 MMtCO ₂ e per year by 2020, or 1 MMtCO ₂ e by 2050	Low (L): Less than \$5/tCO ₂ e
Uncertain (U): Not able to estimate at this time	Uncertain (U): Not able to estimate at this time
¹ Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently of other measures.	
² 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.

Residential, Commercial, and Industrial (RCI)

Note that this listing will be developed more fully during the CCI 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	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in Kentucky
RCI-1	ENERGY EFFICIENCY PROGRAMS, FUNDS, AND GOALS					
1.1	Utility Demand-Side Management (DSM) Programs for Electricity					<ul style="list-style-type: none"> - Some DSM programs focus on reducing energy use; some on reducing peak load. - DSM is a component of the Energy Efficiency Resource Standard (EERS), one of four major action items in KY’s energy strategy. - KY permits utilities to submit DSM plans for approval but does not give the Public Service Commission (PSC) the authority to mandate them.¹
1.2	Utility Demand-Side Management (DSM) Programs for Natural Gas, Propane, and Fuel Oil					DSM is a component of the KY EERS.

¹ See KRS 278.285.

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1.3	Demand-Side Management (DSM) Programs for Distribution Electric Utilities (Munis, Co-ops, etc.)					- DSM is a component of the KY EERS. - This option may not apply to KY because the PSC regulates most distribution cooperatives.
1.4	Energy Efficiency Funds (e.g., Public Benefit Funds (PBF)) Administered by State Agency, Utility, or Third Party (e.g., Energy Trust)					PBF is a component of the KY EERS.
1.5	Regional Market Transformation Through Alliances, Technology Development Programs, and Education			Include research and technology.		
1.6	Reduced-Cost or Free Residential Energy Audits					
1.7	Reduced-Cost Energy Audits or Technical Assistance for Commercial Businesses					
1.8	Reduced-Cost Energy Audits or Technical Assistance for Industry Sectors					Overlaps with 9.7.
1.9	Low-Cost Loans for Energy Efficiency Improvements			Loan programs' success depends heavily on programs' design.		
1.10	Saving Energy, Savings Sales Tax			Sales tax holidays often simply shift sales from one period to another.		Tax incentives cited as a possible component of the KY EERS.

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1.11	Reduce Energy Use by 10% or More in State-Owned Buildings					- Some overlap with 9.1. - Government lead-by-example (GLE) is one of four major action items in KY's energy strategy; recommended targets are 15% reduction in energy consumption from 2009 levels by 2015 and 25% by 2025.
1.12	Encourage Integrated Lean Manufacturing and Energy Use Reduction Technical Assistance to Industrial and Commercial Facilities					
1.13	Develop Investment Tax Credits for Energy Efficiency Improvements in Industrial or Commercial Facilities					Tax incentives are cited as a possible component of the KY EERS.
1.14	Inverted Block Rates to Encourage Energy Efficiency					Also included as 5.4.
RCI-2	BUILDINGS AND FACILITIES					
2.1	Improved Building Codes for Energy Efficiency			Affects only new buildings or substantial retrofits.		- The High Performance Building Advisory Committee to set aggressive standards for state buildings as part of GLE.

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2.2	Training of Building Code and Other Officials in Energy Code Enforcement			High-value effort; best building code efforts incorporate training elements.		- KY is participating in the Energy Code Ambassadors Program (ECAP), a pilot partnership with the International Code Council (ICC) and the Building Codes Assistance Project (BCAP) to train code enforcement officials as regional ambassadors to local code enforcement authorities.
2.3	Improved Design and Construction, "Government Lead by Example"			Impact depends on amount of new government construction.		- Some overlap with 1.11 & 9.1. - GLE is one of four major action items in KY's energy strategy; targeting new state buildings and new or renovated schools.
2.4	Increased Use of Blended Cement (Substituting Fly Ash or Other Pozzolans for Clinker)					
2.5	Support for Energy-Efficient Community Planning; "Smart Growth", Cluster Development, etc.					Often covered more comprehensively as a TLU option.
2.6	Promotion and Incentives for Improved Design and Construction (e.g., LEED Green Buildings) in the Private Sector					GLE is one of four major action items in KY's energy strategy; targeting new state buildings and new or renovated schools.

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2.7	Feebate Program to Encourage Energy Efficiency in Building Design					
2.8	Incentives for Retrofit of Existing Residential, Commercial, Institutional, and Industrial Buildings					Some overlap with 2.13 and 9.4.
2.9	Training and Education for Builders and Contractors (e.g., Heating, Ventilation, and Air Conditioning, Sizing, Duct Sealing)					
2.10	Energy Management Training/Training of Building Operators					
2.11	Energy Efficiency in State and Local Government Buildings			Construction and equipment.		- Some overlap with 1.11 & 9.1. - GLE is one of four major action items in KY's energy strategy; targeting new state buildings and new or renovated schools.
2.12	Require New Government Buildings to Utilize Sustainable Building Design Standards					- Some overlap with GLE 2.11. - e.g., LEED Gold Certification, ASHRAE Green Building Design Standard (189.1), etc. - New public buildings in KY >\$25 million must be LEED Silver or higher. ²
2.13	Create Incentives and Targets for Retrofit of Existing Commercial or Industrial Buildings					Some overlap with 2.8 and 9.4.

² House Bill 2 (2008). See <http://governor.ky.gov/pressrelease.htm?PostingGUID={D415AE6F-856A-4D6B-ABE3-F4BE5B89E8CF}>

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2.14	Develop a Modified Cap-and-Trade Program for Commercial Buildings					
2.15	Building Commissioning and Recommissioning, Including Energy Tracking and Benchmarking					Included under GLE in KY's energy strategy; for new state-funded buildings.
2.16	Explore Advanced Metering Technologies That Can Monitor Energy Usage and Allow Homeowners and Managers to Adjust Energy Use Remotely			Metering can be an expensive plan; remote power controls may not be critical.		
2.17	Require Solar-Ready Building Infrastructure in New Buildings					
2.18	Require Solar Hot-Water Systems in New Buildings					
2.19	Implement a Building Energy Labeling Program					- e.g., ASHRAE Building Energy Quotient program, or Seattle's Energy Use Benchmarking Ordinance #123226. ³
2.20	Require Designers of State and Local Government Buildings to be Certified as High Performance Building Design Professionals					- e.g., LEED Accredited Professional (AP) certification ⁴ or equivalent.

³ See <http://clerk.ci.seattle.wa.us/~scripts/nph-brs.exe?s1=energy&s3=&s4=&s2=&s5=&Sect4=AND&l=20&Sect2=THESON&Sect3=PLURON&Sect5=CBORY&Sect6=HITOFF&d=ORDF&p=1&u=%2F~public%2Fcbory.htm&r=2&f=G>

⁴ See <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1815>

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RCI-3	APPLIANCE STANDARDS					
3.1	Expansion of State-Level Appliance Efficiency Standards					
3.2	Support for Higher Federal Appliance Efficiency Standards					
3.3	Require High-Efficiency Appliances in New Construction and Retrofits					
RCI-4	EDUCATION AND OUTREACH					
4.1	Consumer Education Programs			Extend to businesses, retailers, teachers, and students.		Education, outreach, and marketing (EOM) is one of four major action items in KY's energy strategy.
4.2	Energy Efficiency School Curriculum					
4.3	Truth-in-Advertising Campaign					
4.4	In-Home Energy Displays					Overlaps with 6.10.

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4.5	Create a High-Tech Research and Development Center that Focuses on Renewable Energy and Energy Efficiency					<ul style="list-style-type: none"> - Also, potentially a business incubator or commercialization center. - The Conn Center at the University of Louisville provides leading-edge research in Renewable Energy (RE) and Energy Efficiency (EE). - The Kentucky Science and Technology Corporation supports and incubates small business development in RE/EE. - Research projects are on-going at other state universities in cooperation with DEDI.
4.6	Information and Technical Support for a Broad Spectrum of Climate Change Actions					
RCI-5 PRICING AND PURCHASING						
5.1	Green Power Purchasing for Consumers					<ul style="list-style-type: none"> - Often overlaps with ES. - Currently, E.ON U.S., Duke Energy Kentucky, KY Power, East KY Power, and Big Rivers Electric Corporation have received approval from the PSC to offer such green energy tariff programs.

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5.2	Net Metering for Distributed Generation					- Often overlaps with ES. - KY allows net metering for generators up to 30 kW. ⁵
5.3	Time-of-Use Rates			Seasonal use rates.		Often overlaps with ES.
5.4	Tiered (Increasing-Block) Rates for Electricity and Natural Gas Use					Also included as 1.14.
5.5	Bulk-Purchasing Programs for Energy Efficiency or other Equipment (Public or Private Sector)					
5.6	Incentives and Research for Conversion to Low-Carbon and Renewable Energy Sources					Some overlap possible with 8.1.
5.7	Establish Minimum Energy Performance Criteria for State Procurement of Appliances and Equipment					Included under GLE in KY's energy strategy.
5.8	Green Power Sales from Distributed Generation Sources					
RCI-6	CUSTOMER-SITED DISTRIBUTED ENERGY AND COMBINED HEAT AND POWER (CHP)					
6.1	Incentives for Renewable Energy Systems at Residential, Commercial, and Industrial Sites					
6.2	Incentives and Resources to Promote Combined Heat and Power (CHP, Co-generation Units)					
6.3	Efficient Transformers on the Customer Side of the Meter					

⁵ See KRS 278.465 et seq.

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6.4	Incentives and Resources for Passive Solar Heating					Overlaps with 6.7.
6.5	White Roofs, Rooftop Gardens, and Landscaping (Including Shade Tree Programs)					
6.6	Focus on Specific End-Users and Consumer Products and Technologies					
6.7	Passive Solar Heating Design					Overlaps with 6.4.
6.8	Passive Solar Hot-Water Heating					
6.9	Appliance Recycling/Pick-Up Programs					
6.10	Metering Technologies for Load Management and Choice					Overlaps with 4.4.
RCI-7 NON-ENERGY GHG EMISSIONS (HFCS, PFCS, SF₆, CO₂ PROCESS EMISSIONS)						
7.1	Voluntary Industry-Government Partnerships					
7.2	Promotion and Funding for Leak Reduction/Capture, Recovery, and Recycling of Process Gases					
7.3	Promotion and Funding for Process Changes/Optimization					
7.4	Use of Alternative Gases (Other HFCs, Hydrocarbon Coolants/Refrigerants, etc.)					
RCI-8 GHG EMISSIONS-SPECIFIC GOALS AND POLICIES						
8.1	Support for Switching to Less Carbon-Intensive Fuels (Coal and Oil to Natural Gas or Biomass)					Some overlap possible with 5.6.
8.2	Industry-Specific Emissions Cap-and-Trade Program					

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8.3	Negotiated Emissions or Energy Savings Agreements					
8.4	Local Government Program for Voluntary Emission Targets by Businesses					
8.5	Provide Tools and Information for Residents, Businesses, and Communities to Perform GHG Inventories					
8.6	Carbon Tax					
RCI-9	OTHER					
9.1	Government Agency Requirements and Goals (Including Procurement)					- Some overlap with 1.11, 5.7. - Included under GLE in KY's energy strategy.
9.2	State Buildings Carbon-Neutral Requirement					
9.3	Municipal Energy Management					Funding for energy management systems (EMS), audits, etc.
9.4	Statewide Effort to Retrofit Existing Buildings (Residential, Commercial, Public, and Industrial) for Energy Efficiency					- Some overlap with 2.8 and 2.13. - Included under GLE in KY's energy strategy for state-funded buildings.
9.5	Focus on Energy Efficiency Efforts on Specific Market Segments (Low-Income Housing, Small and Medium Enterprises, etc.)					Focus on specific consuming sectors is included in EOM in KY's energy strategy.
9.6	Energy Efficiency Reinvestment (Revolving Loan) Funds					
9.7	Industrial Energy Audits					Overlaps with 1.8.

Option No.	Greenhouse Gas (GHG) Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in Kentucky
9.8	Focus on Industrial Ecology/By-product Synergy					

CCI = Cross-Cutting Issues; CHP = combined heat and power; CO₂ = carbon dioxide; DSM = demands-side management; ES = Energy Supply; GHG = greenhouse gas; HFCs = hydrofluorocarbons; LEED = Leadership in Energy and Environmental Design; RCI = Residential, Commercial, and Industrial; TWG = Technical Work Group.

Note: Some RCI policies overlap with or are repeated in Energy Supply. One state combined RCI and ES into one sector.