Draft Catalog of Potential State Actions
Residential, Commercial, and Industrial (RCI) Technical Work Group (TWG)

A catalog of state-level, greenhouse gas (GHG)-reducing actions and policy options prepared by the Center for Climate Strategies (CCS), Kansas Energy and Environmental Policy Advisory Group (KEEP), and others based on actions undertaken or considered by Kansas and other states, including regional, state, local, and private actions.

Additions to this catalog have been noted in green.

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.

Key to Future Rankings of Options in the Tables That Follow

Potential GHG Emission Reductions*	Potential Cost or Cost Savings*,†
High (H): At least 1.0 million metric tons (MMt) carbon dioxide equivalent (CO_2e) per year by 2020	**High (H)**: $50 per metric ton CO_2e (tCO_2e) or above
Medium (M): From 0.1 to 1.0 $MMtCO_2e$ per year by 2020	**Medium (M):** $5–$50/tCO_2e
Low (L): Less than 0.1 $MMtCO_2e$ per year by 2020, or 1 MMtCO2e by 2050	**Low (L):** Less than $5/$tCO_2e$
Uncertain (U): Not able to estimate at this time	**Uncertain (U):** Not able to estimate at this time
	Negative (Neg): Net cost savings

*Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently.
† 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.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
RCI-1	**ENERGY EFFICIENCY PROGRAMS, FUNDS, AND GOALS**					
1.1	Utility Demand-Side Management (DSM) for electricity (including expansion of same)					• Energy efficiency education program to reduce energy demand (Kansas Energy Office, KEO) • Several KS utilities offer energy conservation services to their customers, including energy audits and rebates for heating systems, water heaters, and appliances. • Further DSM and Demand Response (DR) actions under consideration in KCC Docket Nos. 08-GIMX-441-GIV and 08-GIMX-442-GIV. The KCC indicated that energy efficiency is a supply resource and that it has a preference for programs which produce cost effective, firm, long-term energy savings. (Links: http://kcc.ks.gov/docket/cal.cgi?docket=08-GIMX-442-GIV and http://kcc.ks.gov/docket/cal.cgi?docket=08-GIMX-441-GIV).
1.2	Utility Demand-Side Management (DSM) for natural gas, propane, and fuel oil					• Several KS utilities offer energy conservation services to their customers, including energy audits and rebates for heating systems, water heaters, and appliances. A fairly comprehensive list is provided in the KCC's June 3, 2008 Order in Docket No. 08-GIMX-442-GIV. • Further DSM and Demand Response (DR) actions under consideration in KCC Docket

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
						Nos. 08-GIMX-441-GIV and 08-GIMX-442-GIV.
1.3	Non-Utility Demand-Side Management (DSM) programs for electricity					• Kansas Warm Homes Project distributes conservation kits to low income, the disabled, and those on fixed incomes. • Kansas City Power and Light (KCPL) offers a free programmable thermostat, worth $300, to qualifying customers to manage their energy usage. • The Kansas Energy Efficiency Program (KEEP) provides low interest loans to qualified Kansas homeowners to make improvements to their homes to increase energy efficiency. KEEP has no income restrictions. Kansas Housing Resources Corporation (KHRC) funds half of the loaned amount, up to a maximum of $10,000.
1.4	Energy Efficiency Funds (e.g., public benefits funds) administered by state agency, utility, or third party (e.g., Energy Trust)					• Kansas Weatherization Assistance Program provides energy efficiency housing improvements for low income households. • KEC (6-18-07) opted not to pursue possible recommendation to implement small GHG reduction fee on utility bills to augment existing state Weatherization Assistance Program. • In Docket No. 07-GIMX-247-GIV, the KCC determined that it would not pursue third party implementation of energy efficiency programs but rather would work

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
						cooperatively with utilities. In Docket No. 08-GIMX-442-GIV the KCC reiterated its commitment to working cooperatively with utilities. Notably, in considering the benefit-cost calculations for energy efficiency programs, the KCC will require utilities to include reasonable estimates of cost associated with carbon regulation in its calculations.
1.5	Regional market transformation alliance					• Additional programs under consideration in KCC Docket 07-GIMX-247-GIV; also smart metering technology under consideration in 07-GMIE-116-GIV.
1.6	Reduced cost or free residential energy audits					• Several KS utilities offer energy conservation services to their customers, including online energy audits and calculators, as well as rebates for heating systems, water heaters, and appliances. • There are few certified energy auditors in the state, so few energy audits take place; more auditors would be needed to implement this option. Consider tying these reduced cost energy audits to actual implementation of an auditor's recommendations.
1.7	Reduced cost energy audits for businesses					• Several KS utilities offer energy conservation services to their customers, including online energy audits and calculators, as well as rebates for heating systems, water heaters, and appliances. • There are few certified energy auditors in the

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
						state, so few energy audits take place; more auditors would be needed to implement this option. Consider tying these reduced cost energy audits to actual implementation of an auditor's recommendations.
1.8	Low-cost loans for energy efficiency improvements					• Various programs at KS utilities. • Midwest Energy's proposed How$mart program allows utilities and customers to enter into financing agreements where energy conservation measures are paid over time through monthly utility bills.
1.9	Saving energy, savings sales tax					
1.10	Reduce energy use by 10% or more in state-owned buildings					• Governor has set a goal of increasing energy efficiency by 5% by 2010 and 10% by 2020.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
RCI-2	**BUILDINGS**					
2.1	Improved building codes for energy efficiency					• The Kansas State Legislature assumes authority for Kansas building energy standards. Both the IECC 2003 and ASHRAE 90.1-2001 are mandatory throughout the state. HB 2036 adopts 2006 IECC as the energy efficiency code for commercial and industrial buildings. • The statewide energy standards require an energy efficiency disclosure by the builder or seller of new residential buildings to the buyer. • KEC staff is conducting survey of KS cities to ascertain current status of EE codes and code enforcement (also surveying Midwestern states regarding codes and enforcement). • KEO will work with task force to develop model EE codes.
2.2	Training of building code and other officials in energy code enforcement					• KEC staff is conducting survey of KS cities to ascertain current status of EE codes and code enforcement (also surveying Midwestern states regarding codes and enforcement). • KEC staff will develop draft recommendation to adopt enforcement provision for consideration at 8-15 KEC meeting.
2.3	Improved design and construction, "government lead-by-					• The Kansas Facility Conservation Improvement Program (FCIP) is in its second generation at the Kansas Energy

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
	example"					Office. The new contract for the FCIP includes 10 pre-qualified Energy Service Companies (ESCOs), and a strong focus on environmental design and responsibility, integrating such factors as United States Green Building Council's LEED (Leadership for Energy Efficient Design) certification. To date, the FCIP has completed over $138.7 million in energy efficiency improvements in nearly 30 million square feet of public building space, avoiding nearly $11 million in utility costs annually. Using energy savings performance contracting, the FCIP has allowed many public-sector customers the opportunity to fund capital improvement projects and save millions of dollars in utility costs. FCIP has been selected as a Best Practice by the Western Governors' Association; and it is being used as an exemplary program by the United States Department of Energy in a half million dollar joint effort with the Energy Services Coalition, National Association of State Energy Offices (NASEO), National Council of State Legislators (NCSL), and National Association of Energy Service Companies (NAESCO). Several other states are modeling their performance contracting program after the Kansas FCIP. • In the aftermath of a May 2007 tornado that destroyed 95% of the city, the Greensburg City Council has passed an ordinance

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
						requiring that all newly constructed or renovated municipally owned facilities larger than 4,000 square feet achieve Platinum certification under the USGBC LEED* rating system. The ordinance further requires that such buildings receive all ten points possible under EA Credit 1 "Optimize Energy Performance". Achieving this will require a whole building energy consumption reduction of 42% from the standard building baseline (ASHRAE Standard 90.1-2004). Initial plans call for the construction of two buildings under this standard; a Business Incubator building and a new school. The city also plans to institute numerous other "green" measures into the rebuilding process and several private building owners have elected to pursue LEED certification for their own projects.
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"					• Rebuilding of Greensburg, Kansas is being done with energy efficiency in mind, including construction of LEED certified buildings. For more information, see http://greensburgks.org/ and www.greensburggreentown.org.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
2.6	Promotion and incentives for improved design and construction (e.g., LEED, green buildings) in the Private Sector					• KEO (FCIP) is assisting reconstruction of energy efficient buildings in Greensburg, KS.
2.7	Feebate program to encourage energy efficiency in building design					• Kansas City Power & Light (KCPL) provides financial incentives for its commercial and industrial customers to increase the energy efficiency of their facilities. Rebates are available for custom energy-saving measures in new or existing buildings. All custom rebates are individually determined and analyzed to ensure that they pass the Societal Benefit/Cost Test. Any measure that is pre-qualified (evaluated prior to being installed) must produce a Societal Benefit/Cost test result of 1.0 or higher. Custom rebates are calculated as the lesser of the following: (1) A buydown to a two year payback, or (2) 50% of the incremental cost. Custom rebates are limited during the first 6 months to a set of maximum amounts provided on KCPL's website, which vary according to the size of the business and whether the building is new or existing. Prescriptive rebates are offered for a pre-qualified list of energy-efficiency measures including lighting, air conditioning, and motors. These prescriptive rebates are only

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
						available to small business customers who are on KCPL's Small General Service rate.
2.8	Incentives for retrofit of existing residential buildings					• KCPL has a proposal before the KCC in Docket No. 08-KCPE-581-TAR to provide promotion and incentives for Home Performance with Energy Star. Staff is in the process of reviewing the application, as of July 2008.
2.9	Training and education for builders and contractors (e.g., heating, ventilation, and air conditioning [HVAC], sizing, duct sealing)					• KSBI training program and utility-sponsored programs. • KEO sponsored training programs in 1990s.
2.10	Energy management training/training of building operators					• KCPL provides funding for the license for the curriculum and partial tuition reimbursement for completion of the Building Operator Certification Program in partnership with the Midwest Energy Efficiency Alliance. See Docket No 07-KCPE-683-MIS.
2.11	Require new government buildings in Kansas to meet LEED Gold certification requirements or equivalent.					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
RCI-3	**APPLIANCE STANDARDS**					
3.1	Expansion of state-level appliance efficiency standards					
3.2	Support for federal-level appliance efficiency standards					
3.3	Require high-efficiency appliances in new construction and retrofits					
RCI-4	**EDUCATION AND OUTREACH**					
4.1	Consumer education programs					• KEO is developing a comprehensive statewide education program, with segments delivered by electric utilities. • Revised Energy Efficiency Disclosure Form (that went into effect on July 1, 2007) for new home sales provides opportunity for increased consumer ed. • HB 2145 creates the Wind Generation Education Pilot Project Fund which will fund a wind generation education project.
4.2	Energy efficiency school curriculum					• KEO statewide education program will include K-12 education; currently under development.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
4.3	Truth-in-advertising campaigns					• The KCC has encouraged utilities to provide more information on the consumer's bill which will allow the consumer to make more informed decisions about usage. See June 3, 2008 Order in Docket No. 08-GIMX-442-GIV, paragraph 30.
4.4	In-home energy displays					
RCI-5	**PRICING AND PURCHASING**					
5.1	Green power purchasing for consumers					• Offered by Westar in 1999, but discontinued due to low participation.
5.2	Net-metering for distributed generation					• KS law requires utilities to pay 150% of the monthly system average cost per kWh for customer-supplied renewable generation (up to 200MW generation capacity).
5.3	Time of use rates					• Westar is developing a time-of-use pricing voluntary pilot program. • In Docket No. 08-GIMX-442-GIV, the KCC has indicated it is supportive of further use of time-of-day or real-time pricing mechanisms to encourage demand response. • KEC Energy Conservation and Efficiency Committee is compiling information on current status (and past experience) with pricing programs. • KEC staff will develop draft recommendation to encourage further study of real-time or time-of-use pricing through pilot programs

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
						for KEC consideration on 8-15-07.
5.4	Tiered (increasing block) rates for electricity and natural gas use					• Some Kansas utilities have tiered rates.
5.5	Bulk purchasing programs for energy efficiency or other equipment					
RCI-6	**CUSTOMER-SITED DISTRIBUTED ENERGY AND COMBINED HEAT AND POWER**					
6.1	Incentives to promote implementation of renewable energy systems					• Several Kansas laws were amended in 2003 to allow the formation of renewable energy co-ops consisting of 5 or more persons that produce at least 100kW of renewable energy. • The State of Kansas exempts renewable energy equipment from property taxes. Renewable energy includes wind, solar thermal electric, photovoltaic, biomass, hydropower, geothermal, and landfill gas resources or technologies that are actually and regularly used predominantly to produce and generate electricity. In addition, beginning in the 2002 tax year all personal property used to collect, refine, and treat landfill gas or transport landfill gas from a landfill to a transmission pipeline (i.e., not necessarily used for electricity generation) is also exempt from property taxes. This provision was added by SB 192 of 2005.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
6.2	Incentives and resources to promote combined heat and power (a.k.a. cogen)					• HB 2038 provides a property tax exemption for certain waste heat utilization systems.
6.3	Efficient transformers on the customer side of the meter					
6.4	Incentives for passive solar heating					
6.5	White roofs, rooftop gardens, and landscaping (including shade tree programs)					
6.6	Focus on specific end-uses/technologies					
6.7	Passive solar heating design					
6.8	Solar hot water heating					• Kansas' solar easement provisions do not create an automatic right to sunlight. Rather, they allow parties to voluntarily enter into solar easement contracts for the purpose of ensuring adequate exposure of a solar energy system. An easement must be expressed in writing and recorded with the register of deeds for that county.
6.9	Appliance recycling/pick-up programs					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
RCI-7	**NON-ENERGY EMISSIONS (HFCs, PFCs, SF_6, CO_2 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)					• HB 2038 provides income tax incentives for certain biofuel storage and blending equipment.
8.2	Industry-specific emissions cap-and-trade program					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
8.3	Negotiated emissions or energy savings agreements					
8.4	Local government program for voluntary emissions targets by businesses					
8.5	Provide tools and information for residents, businesses, and communities to perform GHG inventories					
RCI-9	**OTHER**					
9.1	Government agency requirements and goals					• Exec. Directive 07-373 calls for 100% compliance with existing energy conservation purchasing requirements and development or increased efficiency purchasing standards. • Survey of all state employees conducted in June 2007 per 07-373. • Energy Auditor position created at Dept. of Administration to oversee all initiatives in 07-373.
9.2	Reduce energy use by 10% or more in state-owned buildings					• Governor has set a goal of increasing energy efficiency by 5% by 2010 and 10% by 2020.
9.3	State building carbon-neutral requirement					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in KS
9.4	Municipal energy management					
9.5	Statewide effort to retrofit existing buildings (residential, commercial, public, and industrial) for energy efficiency					
9.6	Focus on specific market segments					• Kansas Weatherization Assistance Program provides energy efficiency housing improvements for low income households. • The Kansas Energy Efficiency Program (KEEP) provides low interest loans to qualified Kansas homeowners to make improvements to their homes to increase energy efficiency. KEEP has no income restrictions. Kansas Housing Resources Corporation (KHRC) funds half of the loaned amount, up to a maximum of $10,000.
9.7	Energy efficiency reinvestment funds					• HB 2145 creates the Wind Generation Education Pilot Project Fund which will fund a wind generation education project.
9.8	Industrial audits					
9.9	Focus on industrial ecology/by-product synergy					