



## 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), the 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.

**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* <sup>†</sup>
<b>High (H):</b> At least 1.0 million metric tons (MMt) of carbon dioxide equivalent (CO <sub>2</sub> e) per year by 2020	<b>High (H):</b> \$50 per metric ton of 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–\$50/tCO <sub>2</sub> e
<b>Low (L):</b> Less than 0.1 MMtCO <sub>2</sub> e per year by 2020, or 1.0 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
	<b>Negative (Neg):</b> Net cost savings

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

<sup>†</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.

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
RCI-1	<b>ENERGY EFFICIENCY PROGRAMS, FUNDS, AND GOALS</b>					
1.1	Utility Demand-Side Management Programs for Electricity	<b>H:</b> 9 <b>M:</b> 1 <b>L:</b> 1 <b>U:</b> 1	<b>H:</b> 1 <b>M:</b> 2 <b>L:</b> 8 <b>N:</b> 0 <b>U:</b> 1	<ul style="list-style-type: none"> <li>Depends on the program specifics; Need more information. Also, depends on cost recovery scheme. Capitalizing DSM costs at the utility level is much more costly than expensing DSM cost, which impacts the cost effectiveness of the program.</li> <li>Customer budget constraints, ability to transform market</li> </ul>	H	<ul style="list-style-type: none"> <li>The Kansas Energy Office (KEO) has an energy efficiency education program to reduce energy demand.</li> <li>Several Kansas utilities offer energy conservation services to their customers, including energy audits and rebates for heating systems, water heaters, appliances, motors, and custom processes and low-cost loans for energy efficiency improvements. Many of these programs are listed in a U.S. Department of Energy (DOE) <a href="#">database</a>.</li> <li>Further demand-side management (DSM) and demand response (DR) actions are under consideration in Kansas Corporation Commission (KCC) Docket Nos. <a href="#">08-GIMX-441-GIV</a> and <a href="#">08-GIMX-442-GIV</a>. The KCC indicated that energy efficiency is a supply resource, and that it has a preference for programs that produce cost-effective, firm, long-term energy savings.</li> </ul>
1.2	Utility Demand-Side Management for Natural Gas, Propane,	<b>H:</b> 6 <b>M:</b> 3	<b>H:</b> 2 <b>M:</b> 3	<ul style="list-style-type: none"> <li>Depends on the program</li> </ul>	H	<ul style="list-style-type: none"> <li>Several Kansas utilities offer energy conservation services to their customers,</li> </ul>

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	and Fuel Oil	L: 1 U: 1	L: 5 N: 0 U: 1	specifics; Need more information. Also, depends on cost recovery scheme. Capitalizing DSM costs at the utility level is much more costly than expensing DSM cost, which impacts the cost effectiveness of the program.		including energy audits and rebates for heating systems, water heaters, appliances, motors, and custom processes. A fairly comprehensive list is provided in the KCC's June 3, 2008, Order in Docket No. <a href="#">08-GIMX-442-GIV</a> . <ul style="list-style-type: none"> <li>• Further DSM and DR actions are under consideration in KCC Docket Nos. <a href="#">08-GIMX-441-GIV</a> and <a href="#">08-GIMX-442-GIV</a>.</li> </ul>

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
1.3	Non-Utility Demand-Side Management Programs for Electricity	<b>H:</b> 4 <b>M:</b> 3 <b>L:</b> 2 <b>U:</b> 1	<b>H:</b> 1 <b>M:</b> 2 <b>L:</b> 6 <b>N:</b> 0 <b>U:</b> 1		M	<ul style="list-style-type: none"> <li>The <a href="#">Kansas Warm Homes Project</a> distributes conservation kits to low-income, disabled, and fixed-income populations.</li> <li>Kansas City Power and Light (KCPL) offers a free programmable thermostat, worth \$300, to qualifying customers to manage their energy use.</li> <li>The <a href="#">Kansas Energy Efficiency Program</a> provides low-interest loans to qualified Kansas homeowners to improve the energy efficiency of their homes. The program has no income restrictions. The Kansas Housing Resources Corporation (KHRC) funds half of the loaned amount, up to a maximum of \$10,000.</li> </ul>
1.4	Energy Efficiency Funds (e.g., Public Benefits Funds) Administered by State Agency, Utility, or Third Party (e.g., Energy Trust)	<b>H:</b> 5 <b>M:</b> 4 <b>L:</b> 1 <b>U:</b> 1	<b>H:</b> 0 <b>M:</b> 3 <b>L:</b> 7 <b>N:</b> 0 <b>U:</b> 1	<ul style="list-style-type: none"> <li>Represents higher costs to RCI</li> <li>Ability to attract low income participants.</li> <li>Ability provide minor home repair with weatherization assistance</li> </ul>	H	<ul style="list-style-type: none"> <li>The <a href="#">Kansas Weatherization Assistance Program</a> (K-WAP) provides energy efficiency housing improvements for low-income households.</li> <li>The Kansas Energy Council (KEC) opted (on 6-18-07) not to pursue a possible recommendation to implement a small greenhouse gas (GHG) reduction fee on utility bills to augment existing K-WAP assistance.</li> <li>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</li> </ul>

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						cooperatively with utilities. In Docket No. <a href="#">08-GIMX-442-GIV</a> , the KCC reiterated this commitment. Notably, in considering the benefit-cost calculations for energy efficiency programs, the KCC will require utilities to include reasonable estimates of costs associated with carbon regulation in the utilities' calculations.
1.5	Regional Market Transformation Alliance	H: 1 M: 6 L: 0 U: 3	H: 0 M: 2 L: 5 N: U: 3		M	<ul style="list-style-type: none"> <li>Additional programs are under consideration in KCC Docket No. <a href="#">07-GIMX-247-GIV</a>; also smart metering technology is under consideration in KCC Docket No. <a href="#">07-GMIE-116-GIV</a>.</li> </ul>
1.6	Reduced-Cost or Free Residential Energy Audits	H: 3 M: 4 L: 3 U: 1	H: 0 M: 3 L: 7 N: 0 U: 1	<ul style="list-style-type: none"> <li>How is this different than 1.1?</li> <li>Ability to encourage customer implementation on recommendations</li> </ul>	H	<ul style="list-style-type: none"> <li>Several Kansas 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.</li> <li><a href="#">Kansas Building Science</a> provides certification classes for energy auditing.</li> <li>Several Kansas communities, including Kansas City and Mission, Kansas, are piloting “green-raising” initiatives to conduct door-to-door education campaigns and assistance for improving residential energy efficiency.</li> </ul>
1.7	Reduced-Cost Energy Audits or Technical Assistance for Commercial	H: 4 M: 4 L: 1	H: 0 M: 3 L: 7	<ul style="list-style-type: none"> <li>Ability to encourage customer implementation</li> </ul>	H	<ul style="list-style-type: none"> <li>Several Kansas utilities offer energy conservation services to their customers, including online energy audits and calculators, as well as rebates for heating</li> </ul>

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	Businesses	<b>U:</b> 1	<b>N:</b> 0 <b>U:</b> 1	on recommendations		systems, water heaters, and appliances. <ul style="list-style-type: none"> <li>• <a href="#">Kansas Building Science</a> provides certification classes for energy auditing.</li> </ul>
1.8	Reduced-Cost Energy Audits or Technical Assistance for Industry Sectors	<b>H:</b> 3 <b>M:</b> 4 <b>L:</b> 2 <b>U:</b> 1	<b>H:</b> 0 <b>M:</b> 3 <b>L:</b> 7 <b>N:</b> 0 <b>U:</b> 1	<ul style="list-style-type: none"> <li>• Ability to encourage customer implementation on recommendations</li> </ul>	H	<ul style="list-style-type: none"> <li>• Several Kansas utilities offer energy conservation services to their customers, including online energy audits and calculators, as well as rebates for industrial-specific measures, such as motors and custom processes.</li> <li>• <a href="#">Kansas Building Science</a> provides certification classes for energy auditing.</li> <li>• DOE provides a <a href="#">listing of activities</a> and energy conservation resources that are specific to Kansas.</li> </ul>
1.9	Low-Cost Loans for Energy Efficiency Improvements	<b>H:</b> 2 <b>M:</b> 6 <b>L:</b> 2 <b>U:</b> 1	<b>H:</b> 0 <b>M:</b> 1 <b>L:</b> 8 <b>N:</b> 1 <b>U:</b> 1	<ul style="list-style-type: none"> <li>• This type of system could fund itself based on energy savings.</li> <li>• Loan payback can create a self generating fund.</li> <li>• Billing and collection issues</li> </ul>	H	<ul style="list-style-type: none"> <li>• Various programs at Kansas utilities.</li> <li>• 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.</li> </ul>

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1.10	Energy Savings Sales Tax	<b>H:</b> 2 <b>M:</b> 0 <b>L:</b> 3 <b>U:</b> 5	<b>H:</b> 0 <b>M:</b> 1 <b>L:</b> 3 <b>N:</b> 1 <b>U:</b> 5		L	
1.11	Reduce Energy Use by 10% or More in State-Owned Buildings	<b>H:</b> 2 <b>M:</b> 5 <b>L:</b> 2 <b>U:</b> 2	<b>H:</b> 1 <b>M:</b> 2 <b>L:</b> 5 <b>N:</b> 1 <b>U:</b> 2	<ul style="list-style-type: none"> <li>Customer budget issues associated with implementation</li> </ul>	H	<ul style="list-style-type: none"> <li>Governor Sebelius has set a goal of increasing energy efficiency by 5% by 2010 and 10% by 2020.</li> </ul>

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
1.12	Encourage Integrated Lean Manufacturing and Energy Use Reduction Technical Assistance to Kansas Industrial and Commercial Facilities	<b>H:</b> 2 <b>M:</b> 5 <b>L:</b> 2 <b>U:</b> 2	<b>H:</b> 0 <b>M:</b> 3 <b>L:</b> 6 <b>N:</b> 0 <b>U:</b> 2	<ul style="list-style-type: none"> <li>Very complex and facility-specific making widespread adoption/ implementation difficult and drawn out over a long period of time. In addition, reductions can be obtained through either 1.8 and 1.13.</li> <li>Customer budget issues associated with implementation</li> </ul>	H	<ul style="list-style-type: none"> <li>The <a href="#">Mid-America Manufacturing Technology Center</a> is a not-for-profit organization that provides training to small and medium-sized manufacturers in Kansas on Lean manufacturing approaches.<sup>1</sup></li> <li>Numerous manufacturers in Kansas (e.g., aerospace companies) are already pursuing Lean manufacturing approaches.</li> </ul>
1.13	Develop Investment Tax Credits for Energy Efficiency Improvements in Industrial or Commercial Facilities	<b>H:</b> 3 <b>M:</b> 4 <b>L:</b> 1 <b>U:</b> 3	<b>H:</b> 0 <b>M:</b> 4 <b>L:</b> 3 <b>N:</b> 1 <b>U:</b> 3	<ul style="list-style-type: none"> <li>Customer budget issues associated with implementation</li> </ul>	H	

<sup>1</sup> Lean manufacturing refers to a collection of business process improvement methods that focus on the identification and elimination of non-value-added activity in manufacturing and administrative processes. Lean methods, such as Kaizen rapid improvement events, value stream mapping, and 5S, are based on the Toyota Production System and are being widely used in the manufacturing and service sectors. Increasingly, Lean manufacturing approaches are being integrated with Six Sigma methods, a collection of statistical analysis tools and other methods that are used to identify and reduce variation in processes.

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<b>RCI-2 BUILDINGS AND FACILITIES</b>						
2.1	Improved Building Codes for Energy Efficiency	<b>H:</b> 6 <b>M:</b> 5 <b>L:</b> 0 <b>U:</b> 1	<b>H:</b> 0 <b>M:</b> 1 <b>L:</b> 8 <b>N:</b> 1 <b>U:</b> 2	<ul style="list-style-type: none"> <li>• More efficient buildings will save the owner money over time.</li> <li>• Politically, this will be difficult</li> </ul>	H	<ul style="list-style-type: none"> <li>• The Kansas State Legislature assumes authority for <a href="#">Kansas building energy standards</a>. Both the International Energy Conservation Code (IECC) 2003 and American Society of Heating, Refrigeration, and Air-Conditioning (ASHRAE) 90.1-2001 are mandatory throughout the state. <a href="#">K.S.A. 66-1227</a> establishes 2006 IECC as the energy efficiency code for commercial and industrial buildings.</li> <li>• The statewide energy standards require an energy efficiency disclosure by the builder or seller of new residential buildings to the buyer.</li> <li>• KEC staff is conducting a survey of Kansas cities to ascertain the current status of energy efficiency (EE) codes and code enforcement (and is also surveying midwestern states regarding codes and enforcement).</li> <li>• KEO will work with a task force, consisting of representatives of local government and homebuilders, to develop model EE codes.</li> </ul>

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2.2	Training of Building Code and Other Officials in Energy Code Enforcement	H: 4 M: 5 L: 1 U: 1	H: 1 M: 2 L: 1 N: 0 U: 1		H	<ul style="list-style-type: none"> <li>• KEC staff is conducting a survey of Kansas cities to ascertain the current status of EE codes and code enforcement (and is also surveying midwestern states regarding codes and enforcement).</li> <li>• KEC developed draft recommendations to adopt an enforcement provision for consideration at the 8-15-08 KEC meeting.</li> </ul>
2.3	Improved Design and Construction, "Government Lead by Example"	H: 4 M: 3 L: 3 U: 1	H: 1 M: 1 L: 7 N: 1 U: 1	<ul style="list-style-type: none"> <li>• LEED should be required on all State funded projects as a tool to confirm the building are built to a sustainable standard.</li> <li>• Customer budget issues associated with implementation</li> </ul>	H	<ul style="list-style-type: none"> <li>• The <a href="#">Kansas Facility Conservation Improvement Program</a> (FCIP) is in its second generation at KEO. The new contract for the FCIP includes 10 prequalified Energy Service Companies (ESCOs), and a strong focus on environmental design and responsibility, integrating such factors as the U.S. Green Building Council's (USGBC's) LEED (Leadership in Energy and Environmental 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, 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 is being used as an</li> </ul>

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						<p>exemplary program by DOE in a \$500,000 joint effort with the Energy Services Coalition, National Association of State Energy Offices National Council of State Legislators, and National Association of Energy Service Companies. Several other states are modeling their performance contracting program after the Kansas FCIP.</p> <ul style="list-style-type: none"> <li>In the aftermath of a May 2007 tornado that destroyed 95% of the city, the Greensburg City Council has passed an ordinance 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 10 points possible under EA Credit 1 "Optimize Energy Performance." Achieving this rating 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</li> </ul>

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						projects.
2.4	Increased Use of Blended Cement (Substituting Fly Ash or Other Pozzolans for Clinker)	<b>H:</b> 0 <b>M:</b> 0 <b>L:</b> 5 <b>U:</b> 4	<b>H:</b> 0 <b>M:</b> 0 <b>L:</b> 3 <b>N:</b> 0 <b>U:</b> 6		L	

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2.5	Support for Energy-Efficient Community Planning, "Smart Growth"	<b>H:</b> 2 <b>M:</b> 2 <b>L:</b> 6 <b>U:</b> 1	<b>H:</b> 1 <b>M:</b> 4 <b>L:</b> 5 <b>N:</b> 0 <b>U:</b> 1	<ul style="list-style-type: none"> <li>• My understanding is that the efforts in Greensburg has significantly increased the costs for residents and slowed the rebuilding process dramatically. More efficient to address under 2.1</li> <li>• Most KS communities are already developed and don't have the opportunity to start over the way Greensburg has.</li> </ul>		<ul style="list-style-type: none"> <li>• Greensburg, Kansas, is being rebuilt with energy efficiency in mind, including construction of LEED-certified buildings. For more information, see <a href="http://greensburgks.org/">http://greensburgks.org/</a> and <a href="http://www.greensburggreentown.org">www.greensburggreentown.org</a>.</li> </ul>

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2.6	Promotion of and Incentives for Improved Design and Construction (e.g., LEED, Green Buildings) in the Private Sector	<b>H:</b> 4 <b>M:</b> 6 <b>L:</b> 0 <b>U:</b> 1	<b>H:</b> 0 <b>M:</b> 2 <b>L:</b> 8 <b>N:</b> 0 <b>U:</b> 1	<ul style="list-style-type: none"> <li>• Need to be sure to address the cost and timing issues – more efficient to address under 2.1</li> <li>• Customer budget issues associated with implementation</li> </ul>	H	<ul style="list-style-type: none"> <li>• FCIP is assisting with the reconstruction of energy-efficient buildings in Greensburg, Kansas.</li> <li>• The USGBC has developed green building standards for many types of new and existing buildings under the <a href="#">LEED certification program</a>.</li> <li>• The National Association of Home Builders has developed <a href="#">green home building guidelines</a> that are specific to the residential sector.</li> </ul>
2.7	Feebate Program to Encourage Energy Efficiency in Building Design	<b>H:</b> 2 <b>M:</b> 4 <b>L:</b> 3 <b>U:</b> 2	<b>H:</b> 0 <b>M:</b> 3 <b>L:</b> 4 <b>N:</b> 0 <b>U:</b> 4	<ul style="list-style-type: none"> <li>• Depends on the program specifics. For utilities it also depends on the cost recovery scheme.</li> <li>• Customer budget issues associated with implementation</li> </ul>	H	<ul style="list-style-type: none"> <li>• 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 prequalified (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 2-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 Web site, which vary according to the size of the business and whether the building is</li> </ul>

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						<p>new or existing. Prescriptive rebates are offered for a prequalified list of energy efficiency measures, including lighting, air conditioning, and motors. These prescriptive rebates are only available to small business customers who are on KCPL's Small General Service rate.</p> <ul style="list-style-type: none"> <li>Municipalities, school districts, state agencies, and colleges that implement energy conservation measures can enter into a contract or lease-purchase agreement for more than 10 years, if necessary.</li> </ul>
2.8	Incentives for Retrofit of Existing Residential Buildings	<b>H:</b> 2 <b>M:</b> 7 <b>L:</b> 1 <b>U:</b> 1	<b>H:</b> 0 <b>M:</b> 4 <b>L:</b> 6 <b>N:</b> 0 <b>U:</b> 1	<ul style="list-style-type: none"> <li>Focus should be on energy reduction</li> <li>Customer budget issues associated with implementation</li> </ul>	H	<ul style="list-style-type: none"> <li>KCPL has a proposal before the KCC in Docket No. <a href="#">08-KCPE-581-TAR</a> to provide promotion and incentives for Home Performance with ENERGY STAR. Staff is in the process of reviewing the application, as of July 2008.</li> </ul>
2.9	Training and Education for Builders and Contractors (e.g., Heating, Ventilation, and Air Conditioning Sizing, Duct Sealing)	<b>H:</b> 1 <b>M:</b> 7 <b>L:</b> 1 <b>U:</b> 2	<b>H:</b> 0 <b>M:</b> 2 <b>L:</b> 7 <b>N:</b> 0 <b>U:</b> 2	<ul style="list-style-type: none"> <li>Customer budget issues associated with implementation</li> </ul>	H	<ul style="list-style-type: none"> <li><a href="#">Kansas Building Science</a> provides training programs and utility-sponsored programs.</li> <li>KEO sponsored training programs in the 1990s.</li> </ul>

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2.10	Energy Management Training/Training of Building Operators	<b>H:</b> 3 <b>M:</b> 6 <b>L:</b> 2 <b>U:</b> 1	<b>H:</b> 1 <b>M:</b> 2 <b>L:</b> 8 <b>N:</b> 0 <b>U:</b> 1	<ul style="list-style-type: none"> <li>Customer budget issues associated with implementation</li> </ul>	H	<ul style="list-style-type: none"> <li>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 <a href="#">07-KCPE-683-MIS</a>.</li> <li>Resources, such as ENERGY STAR's Building Energy Manager Program, would be useful for this option.</li> </ul>
2.11	Require or Encourage New Government Buildings in Kansas to Meet LEED Gold Certification Requirements or Equivalent	<b>H:</b> 3 <b>M:</b> 4 <b>L:</b> 3 <b>U:</b> 1	<b>H:</b> 0 <b>M:</b> 3 <b>L:</b> 5 <b>N:</b> 1 <b>U:</b> 2	<ul style="list-style-type: none"> <li>The state can lead by example and save money at the same time.</li> <li>Customer budget issues associated with implementation</li> </ul>	H	
2.12	Create Incentives and Targets for Retrofit of Existing Commercial or Industrial Buildings	<b>H:</b> 4 <b>M:</b> 3 <b>L:</b> 3 <b>U:</b> 1	<b>H:</b> 0 <b>M:</b> 5 <b>L:</b> 4 <b>N:</b> 1 <b>U:</b> 1	<ul style="list-style-type: none"> <li>Customer budget issues associated with implementation</li> </ul>	M	<ul style="list-style-type: none"> <li>DOE lists many existing incentives for commercial and industrial buildings in a <a href="#">database</a>.</li> </ul>

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2.13	Develop a Modified Cap-and-Trade Program for Commercial Buildings in Kansas	<b>H:</b> 1 <b>M:</b> 2 <b>L:</b> 3 <b>U:</b> 4	<b>H:</b> 2 <b>M:</b> 2 <b>L:</b> 1 <b>N:</b> 0 <b>U:</b> 5	<ul style="list-style-type: none"> <li>Implementing a program like this for just KS would put our state at a significant competitive disadvantage. Reductions can be reached through other options</li> </ul>	M	
2.14	Explore Advanced Metering Technologies That Can Monitor Energy Usage and Allow Homeowners and Managers to Adjust Energy Use Remotely	<b>H:</b> 1 <b>M:</b> 5 <b>L:</b> 5 <b>U:</b> 1	<b>H:</b> 1 <b>M:</b> 5 <b>L:</b> 4 <b>N:</b> 0 <b>U:</b> 2	<ul style="list-style-type: none"> <li>Costs for these systems, which rely on computer technology, will undoubtedly reduce with time.</li> <li>Required technology improvements for successful implementation</li> </ul>	M	
2.15	White Roofs, Rooftop Gardens, and Landscaping (Including Shade Tree Programs)	<b>H:</b> 0 <b>M:</b> 2 <b>L:</b> 8 <b>U:</b> 1	<b>H:</b> 2 <b>M:</b> 3 <b>L:</b> 5 <b>N:</b> 0 <b>U:</b> 1		L	

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
2.16	State Building Carbon-Neutral Requirement	H: 3 M: 2 L: 3 U: 2	H: 2 M: 2 L: 1 N: 0 U: 5	<ul style="list-style-type: none"> <li>Significant cost concerns</li> </ul>	H	
2.17	Municipal Energy Management	H: 3 M: 2 L: 2 U: 3	H: 0 M: 1 L: 5 N: 1 U: 3		M	
<b>RCI-3</b>	<b>STANDARDS FOR APPLIANCES AND ELECTRONIC EQUIPMENT</b>					
3.1	Expansion of State-Level Appliance and Electronic Equipment Efficiency Standards	H: 1 M: 4 L: 3 U: 2	H: 1 M: 2 L: 4 N: 0 U: 3		L	
3.2	Support for Federal-Level Appliance and Electronic Equipment Efficiency Standards	H: 2 M: 5 L: 1 U: 2	H: 1 M: 0 L: 6 N: 1 U: 2		M	
3.3	Require or Encourage High-Efficiency Equipment in New Construction and Retrofits	H: 4 M: 5 L: 1 U: 2	H: 1 M: 4 L: 4 N: 1 U: 2	<ul style="list-style-type: none"> <li>Significant cost concerns</li> <li>Customer budget issues associated with implementation</li> </ul>	H	

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
3.4	Appliance Recycling/Pick-Up Programs	H: 1 M: 0 L: 8 U: 2	H: 1 M: 4 L: 4 N: 0 U: 2	<ul style="list-style-type: none"> <li>Customer participation/ market penetration</li> </ul>	L	
<b>RCI-4</b>	<b>EDUCATION AND OUTREACH</b>					
4.1	Consumer Education Programs	H: 3 M: 5 L: 3 U: 1	H: 2 M: 3 L: 6 N: 0 U: 1	<ul style="list-style-type: none"> <li>Consumer education is a vital part of whatever programs the KEEP implements.</li> <li>Customer participation/ market penetration</li> </ul>	H	<ul style="list-style-type: none"> <li>KEO is developing a comprehensive statewide education program, with segments delivered by electric utilities.</li> <li>A revised Energy Efficiency Disclosure Form (that went into effect on July 1, 2007) for new home sales provides opportunity for increased consumer education.</li> <li><a href="#">KSA 2007 Supp.66-1,184</a> authorizes Cloud County and Dodge City Community Colleges each to establish a wind generation education pilot project.</li> <li>A number of Kansas utilities have educational materials for their customers and tools, such as online energy audit calculators, dedicated to energy efficiency and renewable energy information.</li> <li>Several Kansas communities, including Kansas City and Mission, Kansas, are piloting “green-raising” initiatives to conduct door-to-door education campaigns and assistance for improving residential energy efficiency.</li> </ul>

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
4.2	Energy Efficiency School Program	H: 1 M: 3 L: 5 U: 3	H: 2 M: 2 L: 5 N: 1 U: 2	<ul style="list-style-type: none"> <li>Customer participation/ market penetration</li> </ul>	H	<ul style="list-style-type: none"> <li>A KEO statewide education program, currently under development will include K-12 education.</li> </ul>
4.3	Truth-in-Advertising Campaigns	H: 0 M: 2 L: 4 U: 4	H: 1 M: 0 L: 5 N: 1 U: 3		L	<ul style="list-style-type: none"> <li>The KCC has encouraged utilities to provide more information on the consumer bills, which will allow consumers to make more informed decisions about their energy use. (See the June 3, 2008, Order in Docket No. <a href="#">08-GIMX-442-GIV</a>, paragraph 30.)</li> </ul>
4.4	In-Home Energy/Power Displays	H: 1 M: 5 L: 3 U: 2	H: 2 M: 3 L: 3 N: 0 U: 3	<ul style="list-style-type: none"> <li>In home power displays provide incentive to conserve, especially during peak demand. Cost of this equipment should come down as the market expands.</li> <li>Sustainability of behavior</li> </ul>	M	

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
4.5	Create a High-Tech Research and Development Center That Focuses on Renewable Energy and Energy Efficiency	<b>H:</b> 1 <b>M:</b> 3 <b>L:</b> 5 <b>U:</b> 2	<b>H:</b> 4 <b>M:</b> 2 <b>L:</b> 0 <b>N:</b> 0 <b>U:</b> 4	<ul style="list-style-type: none"> <li>• Our state universities should take hold of this idea.</li> <li>• Sustainability of behavior</li> </ul>	M	<ul style="list-style-type: none"> <li>• The <a href="#">Energy Research Center</a> at Kansas University focuses on many aspects of energy development and use.</li> </ul>
<b>RCI-5 PRICING AND PURCHASING</b>						
5.1	Green Power Purchasing by Consumers	<b>H:</b> 1 <b>M:</b> 3 <b>L:</b> 5 <b>U:</b> 2	<b>H:</b> 3 <b>M:</b> 4 <b>L:</b> 1 <b>N:</b> 1 <b>U:</b> 2	<ul style="list-style-type: none"> <li>• Long term “Green” sustainability commitment required</li> </ul>	H	<ul style="list-style-type: none"> <li>• Offered by Westar in 1999, but discontinued due to low participation. A new green power purchase program is in development at Westar.</li> <li>• The <a href="#">Zephyr Energy Program</a> is a “green tags” program offered jointly by the Bonneville Environmental Foundation and Bowersock Mills and Power Company.</li> </ul>

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
5.2	Net Metering for Distributed Generation	<b>H:</b> 2 <b>M:</b> 4 <b>L:</b> 4 <b>U:</b> 2	<b>H:</b> 1 <b>M:</b> 7 <b>L:</b> 1 <b>N:</b> 1 <b>U:</b> 2	<ul style="list-style-type: none"> <li>2% of state residential load should save 1 MMTCO<sub>2</sub>E. Net cost savings as distributed generation will reduce transmission costs and peak demand equipment costs.</li> <li>KS is one of only 8 states that do not currently have net metering. Current KS payback rate would require no hardware changes, and would provide a powerful incentive for investment in renewable energy, reduce peak demand, reduce utility demand</li> </ul>	H	<ul style="list-style-type: none"> <li><a href="#">KSA 2007 Supp. 66-1,184</a> requires utilities to pay 150% of the monthly system average cost per kilowatt-hour for customer-supplied renewable generation (up to 200 megawatts generation capacity).</li> </ul>
	Kansas Energy and Environmental Policy Advisory Group <a href="http://www.ksclimatechange.us">www.ksclimatechange.us</a>			growth, and create jobs for supplies and service companies.		Center for Climate Strategies <a href="http://www.climatestrategies.us">www.climatestrategies.us</a>

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
5.3	Time-of-Use Rates	<b>H:</b> 2 <b>M:</b> 3 <b>L:</b> 5 <b>U:</b> 2	<b>H:</b> 1 <b>M:</b> 2 <b>L:</b> 7 <b>N:</b> 0 <b>U:</b> 2	<ul style="list-style-type: none"> <li>Required market pricing v. cost based rates</li> </ul>	M	<ul style="list-style-type: none"> <li>Westar is developing a time-of-use pricing voluntary pilot program.</li> <li>In Docket No. <a href="#">08-GIMX-442-GIV</a>, the KCC has indicated it supports further use of time-of-day or real-time pricing mechanisms to encourage demand response.</li> <li>The KEC Energy Conservation and Efficiency Committee is compiling information on the status of (and past experience with) pricing programs.</li> <li>KEC staff developed a draft recommendation to encourage further study of real-time or time-of-use pricing through pilot programs for KEC consideration on 8-15-08.</li> <li><a href="#">Midwest Energy</a> has a voluntary program for time-of-use rates to manage peak load power for commercial and industrial customers.</li> </ul>
5.4	Tiered (Increasing-Block) Rates for Electricity and Natural Gas Use	<b>H:</b> 3 <b>M:</b> 2 <b>L:</b> 4 <b>U:</b> 2	<b>H:</b> 1 <b>M:</b> 1 <b>L:</b> 6 <b>N:</b> 1 <b>U:</b> 2	<ul style="list-style-type: none"> <li>Required market pricing v. cost based rates</li> </ul>	M	<ul style="list-style-type: none"> <li>Some Kansas utilities have tiered rates.</li> </ul>

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
5.5	Bulk-Purchasing Programs for Energy Efficiency or Other Equipment	H: 0 M: 1 L: 3 U: 6	H: 0 M: 2 L: 1 N: 0 U: 7		L	
<b>RCI-6 CUSTOMER-SITED DISTRIBUTED ENERGY AND COMBINED HEAT AND POWER</b>						
6.1	Incentives to Promote Implementation of Renewable Energy Systems	H: 4 M: 3 L: 2 U: 2	H: 3 M: 4 L: 2 N: 0 U: 2	<ul style="list-style-type: none"> <li>When you factor in the reduction in carbon based fuels, the externality cost might make this much more cost attractive</li> <li>Long term "Green" sustainability commitment required</li> <li>Renewable equipment price reduction required</li> </ul>	H	<ul style="list-style-type: none"> <li>Several Kansas laws were amended in 2003 to allow the formation of renewable energy co-ops consisting of 5 or more people that produce at least 100 kilowatts of renewable energy.</li> <li>Kansas <a href="#">exempts renewable energy equipment from property taxes</a>. 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.</li> </ul>

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
6.2	Incentives and Resources to Promote Combined Heat and Power	<b>H:</b> 4 <b>M:</b> 3 <b>L:</b> 1 <b>U:</b> 3	<b>H:</b> 1 <b>M:</b> 4 <b>L:</b> 3 <b>N:</b> 0 <b>U:</b> 3		H	<ul style="list-style-type: none"> <li>• <a href="#">KSA 2007 Supp. 79-231</a> provides a property tax exemption for certain waste heat utilization systems. <a href="#">KSA 2007 Supp. 79-32,250</a> provides for accelerated depreciation and a deduction for certain waste heat utilization systems, and <a href="#">KSA 2007 Supp. 74-8949d</a> authorizes the issuance of revenue bonds for the construction and installation of certain waste heat utilization systems.</li> </ul>
6.3	Efficient Transformers on the Customer Side of the Meter	<b>H:</b> 1 <b>M:</b> 0 <b>L:</b> 4 <b>U:</b> 6	<b>H:</b> 1 <b>M:</b> 3 <b>L:</b> 0 <b>N:</b> 0 <b>U:</b> 7	<ul style="list-style-type: none"> <li>• Long term “Green” sustainability commitment required</li> <li>• Renewable equipment price reduction required</li> </ul>	L	
6.4	Incentives for Passive Solar Heating	<b>H:</b> 1 <b>M:</b> 3 <b>L:</b> 4 <b>U:</b> 3	<b>H:</b> 1 <b>M:</b> 2 <b>L:</b> 3 <b>N:</b> 2 <b>U:</b> 3	<ul style="list-style-type: none"> <li>• Long term “Green” sustainability commitment required</li> </ul>	M	

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
6.5	Focus on Specific End Uses/Technologies	H: 1 M: 1 L: 4 U: 5	H: 0 M: 3 L: 2 N: 0 U: 5	<ul style="list-style-type: none"> <li>Long term “Green” sustainability commitment required</li> <li>Renewable equipment price reduction required</li> </ul>	L	
6.6	Passive Solar Heating Design	H: 0 M: 2 L: 4 U: 5	H: 1 M: 3 L: 2 N: 1 U: 4	<ul style="list-style-type: none"> <li>Long term “Green” sustainability commitment required</li> </ul>	L	
6.7	Solar Hot Water Heating	H: 1 M: 2 L: 6 U: 2	H: 2 M: 3 L: 3 N: 1 U: 2	<ul style="list-style-type: none"> <li>Long term “Green” sustainability commitment required</li> </ul>	M	<ul style="list-style-type: none"> <li><a href="#">Kansas' solar easement provisions</a> 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.</li> </ul>
<b>RCI-7</b>	<b>NON-ENERGY EMISSIONS (HFCs, PFCs, SF<sub>6</sub>, CO<sub>2</sub> PROCESS EMISSIONS)</b>					
7.1	Voluntary Industry-Government Partnerships	H: 0 M: 0 L: 7 U: 2	H: 0 M: 1 L: 6 N: 0 U: 2	<ul style="list-style-type: none"> <li>These already exist</li> </ul>	L	

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
7.2	Promotion and Funding for Leak Reduction/Capture, Recovery, and Recycling of Process Gases	H: 0 M: 3 L: 2 U: 4	H: 0 M: 2 L: 2 N: U: 5	<ul style="list-style-type: none"> <li>These already exist</li> </ul>	L	
7.3	Promotion and Funding for Process Changes/Optimization	H: 0 M: 1 L: 5 U: 3	H: 0 M: 1 L: 3 N: 0 U: 5	<ul style="list-style-type: none"> <li>Already exist</li> </ul>	L	
7.4	Use of Alternative Gases (Other HFCs, Hydrocarbon Coolants/Refrigerants, etc.)	H: 1 M: 0 L: 3 U: 6	H: 0 M: 1 L: 2 N: 0 U: 7	<ul style="list-style-type: none"> <li>Already exist</li> </ul>	L	
<b>RCI-8</b>	<b>SPECIFIC GHG EMISSIONS POLICIES</b>					
8.1	Support for Switching to Less Carbon-Intensive Fuels (Coal and Oil to Natural Gas or Biomass)	H: 2 M: 4 L: 3 U: 1	H: 2 M: 5 L: 0 N: 0 U: 3	<ul style="list-style-type: none"> <li>Significant cost concerns</li> </ul>	M	<ul style="list-style-type: none"> <li><a href="#">KSA 2007 Supp. 79-32,251 – 32,255</a> provide income tax incentives for certain biofuel storage and blending equipment.</li> </ul>
8.2	Industry-Specific Emissions Cap-and-Trade Program	H: 4 M: 0 L: 3 U: 3	H: 2 M: 0 L: 3 N: 0 U: 5	<ul style="list-style-type: none"> <li>Significant cost concerns</li> </ul>	M	

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
8.3	Negotiated Emissions or Energy Savings Agreements	<b>H:</b> 2 <b>M:</b> 1 <b>L:</b> 2 <b>U:</b> 4	<b>H:</b> 0 <b>M:</b> 0 <b>L:</b> 3 <b>N:</b> 0 <b>U:</b> 6	<ul style="list-style-type: none"> <li>Significant cost concerns</li> </ul>	L	
8.4	Local Government Program for Voluntary Emission Targets by Businesses	<b>H:</b> 1 <b>M:</b> 1 <b>L:</b> 5 <b>U:</b> 2	<b>H:</b> 0 <b>M:</b> 1 <b>L:</b> 6 <b>N:</b> 0 <b>U:</b> 2	<ul style="list-style-type: none"> <li>Significant cost concerns</li> </ul>	L	
8.5	Provide Tools and Information for Residents, Businesses, and Communities to Perform GHG Inventories	<b>H:</b> 1 <b>M:</b> 2 <b>L:</b> 3 <b>U:</b> 4	<b>H:</b> 0 <b>M:</b> 2 <b>L:</b> 4 <b>N:</b> 1 <b>U:</b> 3	<ul style="list-style-type: none"> <li>Long term “Green” sustainability commitment required</li> </ul>	M	

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
RCI-9	<b>OTHER RCI POLICIES</b>					
9.1	Government Agency Requirements and Goals	H: 1 M: 2 L: 5 U: 1	H: 0 M: 1 L: 5 N: 2 U: 1		L	<ul style="list-style-type: none"> <li>• <a href="#">Exec. Directive 07-373</a> calls for 100% compliance with existing energy conservation purchasing requirements and development or increased efficiency purchasing standards.</li> <li>• A survey of all state employees conducted in June 2007 per Exec. Directive 07-373.</li> <li>• An Energy Auditor position was created at the Kansas Department of Administration to oversee all initiatives in Exec. Directive 07-373.</li> </ul>
9.2	Focus on Specific Market Segments	H: 1 M: 4 L: 2 U: 3	H: 0 M: 1 L: 6 N: 0 U: 3		L	<ul style="list-style-type: none"> <li>• <a href="#">K-WAP</a> provides energy efficiency housing improvements for low-income households.</li> <li>• The <a href="#">Kansas Energy Efficiency Program</a> provides low-interest loans to qualified Kansas homeowners to improve the energy efficiency of their homes. This program has no income restrictions. KHRC funds half of the loaned amount, up to a maximum of \$10,000.</li> </ul>
9.3	Energy Efficiency Reinvestment Funds	H: 1 M: 6 L: 1 U: 2	H: 0 M: 1 L: 6 N: 0 U: 3		M	<ul style="list-style-type: none"> <li>• <a href="#">KSA 2007 Supp.66-1,184</a> authorizes Cloud County and Dodge City Community Colleges each to establish a wind generation education pilot project.</li> </ul>

Option No.	GHG Reduction Policy Option	Potential GHG Emission Reductions	Cost/Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Kansas
9.4	Focus on Industrial Ecology/By-product Synergy	<b>H:</b> 0 <b>M:</b> 3 <b>L:</b> 3 <b>U:</b> 4	<b>H:</b> 0 <b>M:</b> 3 <b>L:</b> 1 <b>N:</b> 0 <b>U:</b> 6		L	

ASHRAE = American Society of Heating, Refrigerating, and Air-Conditioning Engineers; DOE = U.S. Department of Energy; DR = demand response; DSM = demand-side management; EE = energy efficiency; ESCO = energy service company; Exec. = Executive; FCIP = Facility Conservation Improvement Program; GHG = greenhouse gas; HFC = hydrofluorocarbon; IECC = International Energy Conservation Code; KCPL = Kansas City Power and Light; KCC = Kansas Corporation Commission; KEC = Kansas Energy Council; KEO = Kansas Energy Office; KHRC = Kansas Housing Resources Corporation; KSA = Kansas Statutes Annotated; K-WAP = Kansas Weatherization Assistance Program; LEEF = Leadership in Energy and Environmental Design; SB = Senate Bill; Supp. = Supplement; USGBC = U.S. Green Building Council.