



## Memo

**To:** Iowa Climate Change Advisory Council (ICCAC)  
**From:** The Center for Climate Strategies (CCS)  
**CC:** Richard Leopold, Iowa DNR  
**Subject:** Preparation for the Sixth Meeting of the Iowa Climate Change Advisory Council  
**Date:** November 10, 2008

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At the seventh meeting of the Iowa Climate Change Advisory Council on Monday, November 10, 2008, we will focus on review and approval of the remaining pending policy options from the five Subcommittees (SCs). We will also present the summary quantification of results for all the options and discuss these results in the context of short, mid and long-term GHG reduction goals for Iowa. At the last meeting the Council approved all of the recommended changes from the Subcommittees to the draft Iowa GHG Emissions Inventory and Forecast (I-F). The Council will be asked to approve the final I-F Report at this meeting. Finally, we will review the process for developing the final report for the Council by December 15, 2008.

In preparation for our meeting, please review the attached lists of SC-recommended Pending Policy Option Proposals and other background documents posted to the project Web site at: [www.iaclimatechange.us](http://www.iaclimatechange.us). We will not be reviewing options that have already been approved by the Council, unless significant changes are proposed by the SC.

In terms of overall progress, the ICCAC has completed key milestones since its launch, including

- Identification of a full range of potential Iowa options for mitigation of GHG emissions, including more than 300 possible state actions included in the Catalog of State Actions;
- SC identification by balloting and ICCAC approval of 54 priorities for analysis of draft policy options;
- Development of the December 2007 Interim Report to the Legislature;
- Development of a draft Iowa GHG Inventory and Forecast, presented at Meeting #4; and
- Initial approval of Straw Policy Option proposals from the Subcommittees.
- Approval of proposed modifications from the Subcommittees to the draft Iowa GHG Emissions Inventory and Forecast.

- Approval of about 37 policy options as depicted in Tables 1-5.

The next stages of the ICCAC process will include completion of the following milestones at our seventh meeting:

- Completion of quantification of emission reductions, costs/cost savings, and cost-effectiveness of all remaining policy options by CCS.
- Final approval of remaining ICCAC policy option recommendations.
- Final approval of proposed GHG reduction goals and targets for Iowa; and
- Final approval of the statewide inventory and forecast of GHG emissions by the final meeting.

**Summary of ICCAC Progress and Next Steps**

<b>Status of Draft Policy Options</b>	
Original number of potential options presented to the ICCAC from the CCS Catalog of State Actions	253
Updated number of potential options in the CCS Catalog of State Actions, including ICCAC additions	300+
Current number of approved, pending or rejected priority policy options for analysis	54
Energy Efficiency and Conservation (EEC)	14:11 approved, 3 pending
Clean and Renewable Energy (CRE)	13: 5.5 approved, 7.5 pending
Transportation and Land Use (TLU)	10: 6 approved, 4 pending
Agriculture, Forestry, and Waste Management (AFW)	9: 8 approved, 1 rejected
Cross-Cutting Issues (CC)	8: 7 approved, 1 pending
Total	37.5 approved, 16.5 pending
<b>Next Steps</b>	
Final Approval of the IA GHG Emissions Inventory and Forecast.	ICCAC Meeting #7
Review and approve all pending policy options to include in Final Report.	ICCAC Meeting #7
Approve proposed GHG reduction goals and targets for short-term (2012) and mid-term (2020).	ICCAC Meeting #7

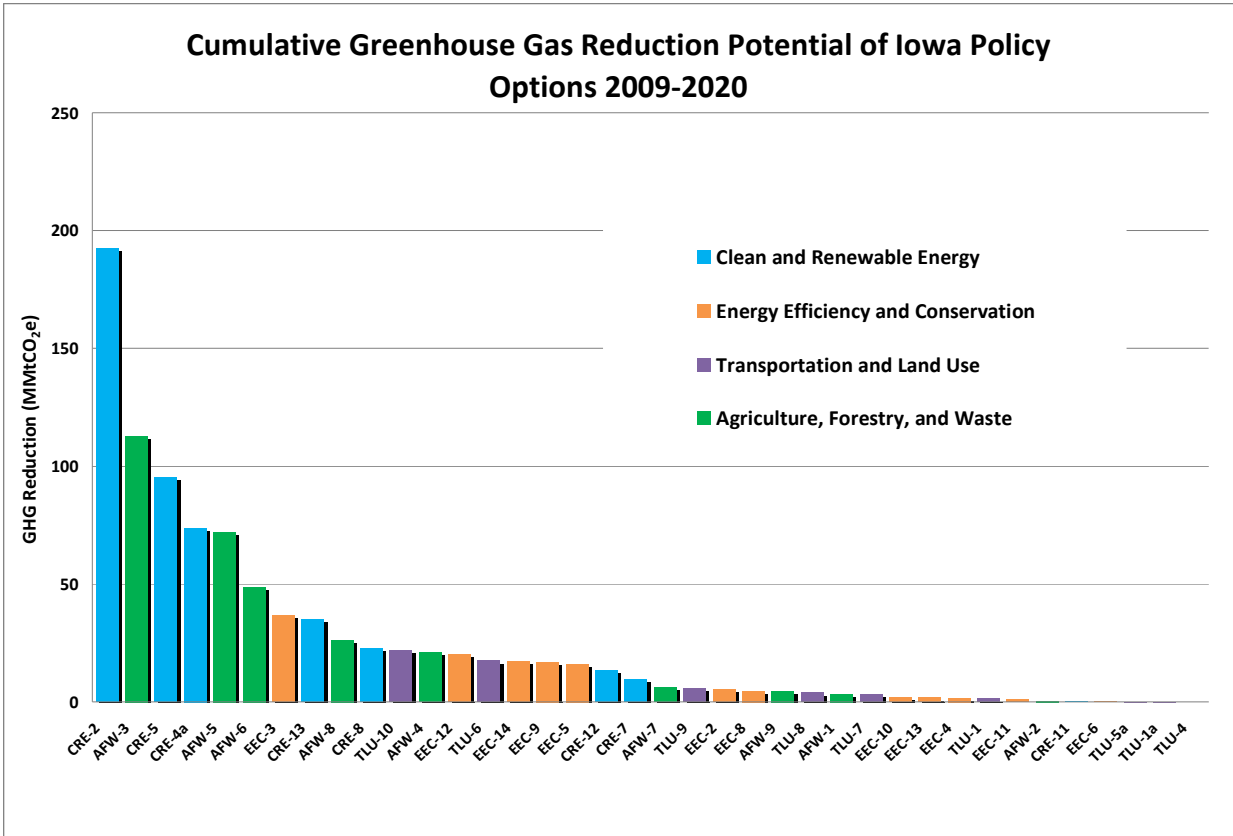
**Draft Results  
(Completed & Pending Options)**

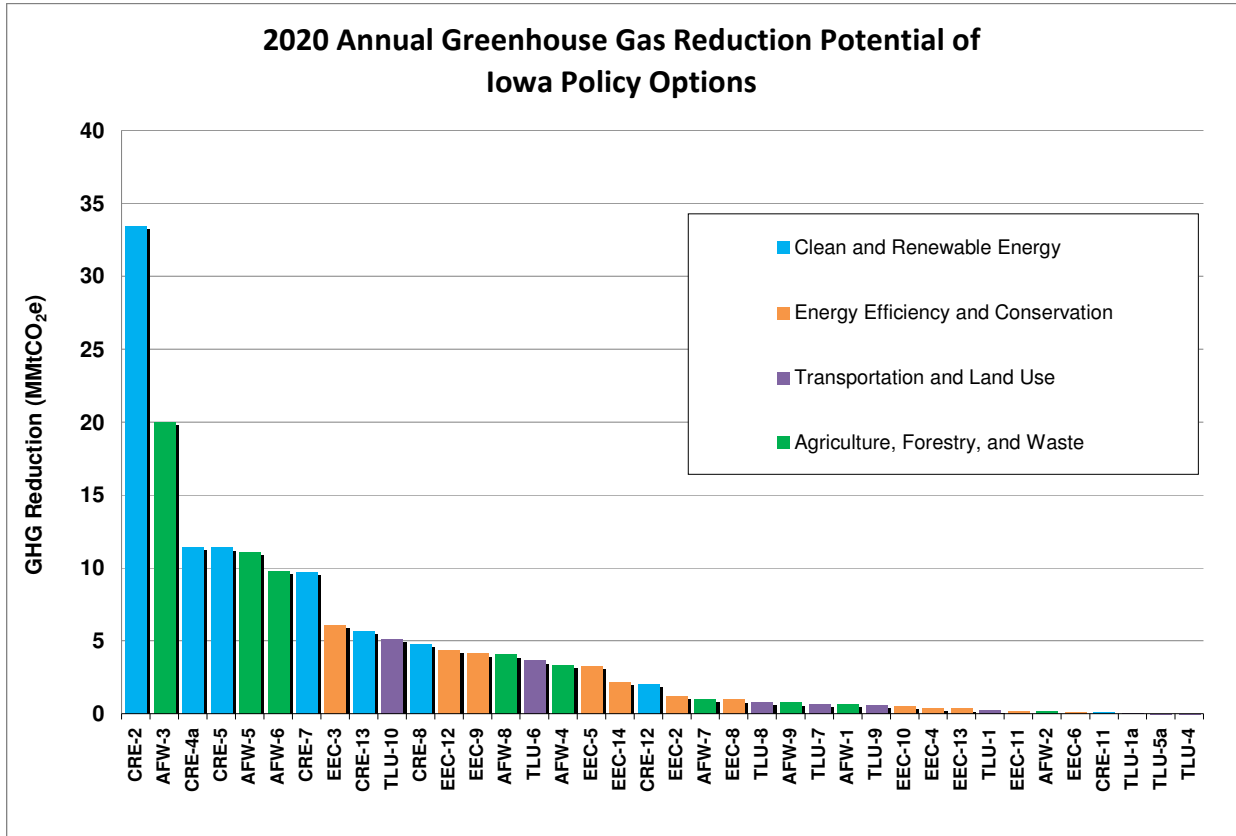
<b>Consumption Basis - Gross Emissions</b>							
	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2012</b>	<b>2015</b>	<b>2020</b>
Projected GHG Emissions	97.3	114.2	119.5	124.4	127.3	131.4	139.1
Reductions from Recent Actions			0.0	0.3	0.7	1.6	3.3
Projected GHG Emissions After Recent Actions			119.5	124.1	126.6	129.8	135.7
GHG Reduction Goal Recommended by ICCAC					TBD	NA	TBD
Total GHG Reductions from ICCAC Policies					19.8	51.8	104.9
Difference Between ICCAC Reductions & Targets					TBD	NA	TBD
Projected Emissions After Quantified ICCAC Reductions					106.7	78.1	30.8

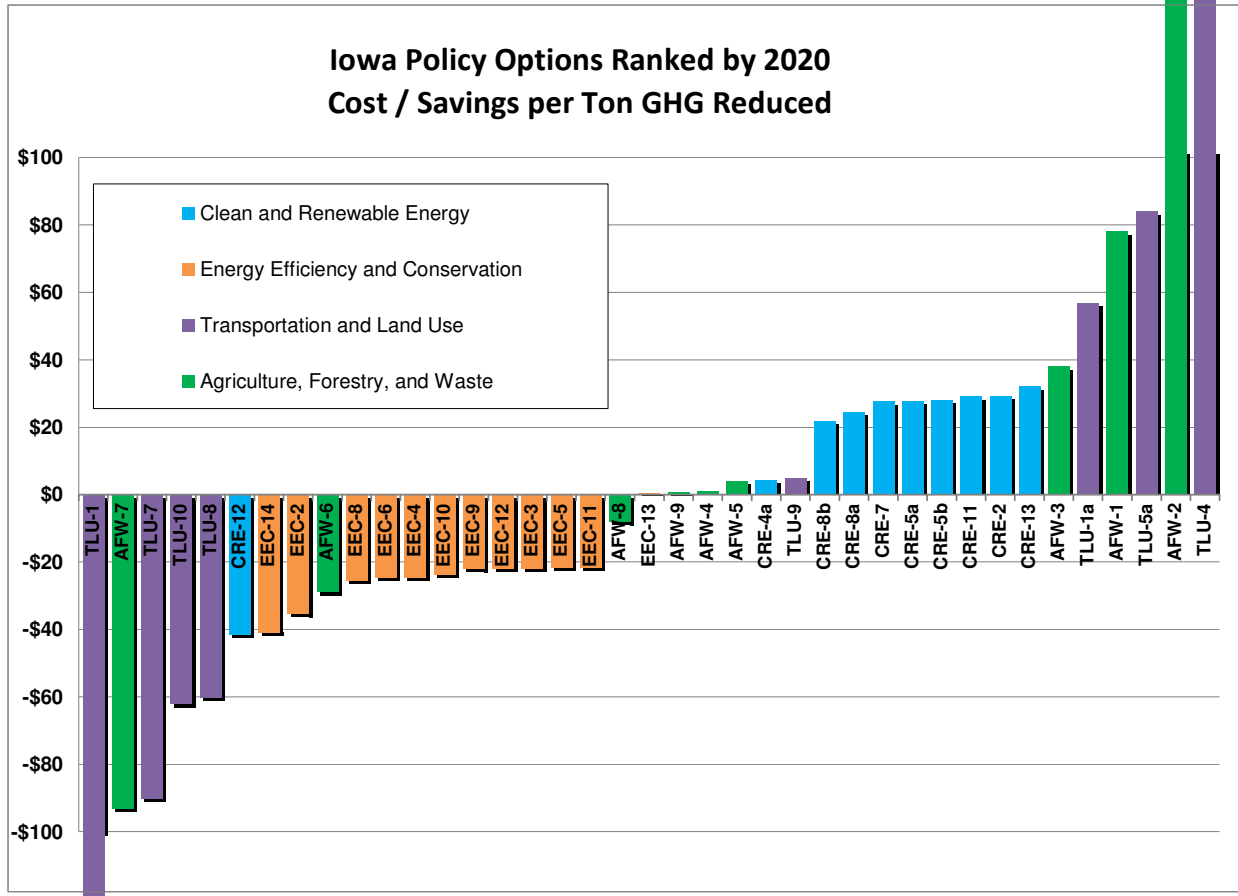
<b>Production Basis - Gross Emissions</b>							
	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2012</b>	<b>2015</b>	<b>2020</b>
Projected GHG Emissions	96.6	115.1	118.1	128.1	129.9	132.8	137.7
Reductions from Recent Actions			0.0	0.3	0.7	1.6	3.3
Projected GHG Emissions After Recent Actions			118.1	127.8	129.2	131.3	134.4
GHG Reduction Goal Recommended by ICCAC					TBD	NA	TBD
Total GHG Reductions from ICCAC Policies					19.8	51.8	104.9
Difference Between ICCAC Reductions & Targets					TBD	NA	TBD
Projected Emissions After Quantified ICCAC Reductions					109.4	79.5	29.4

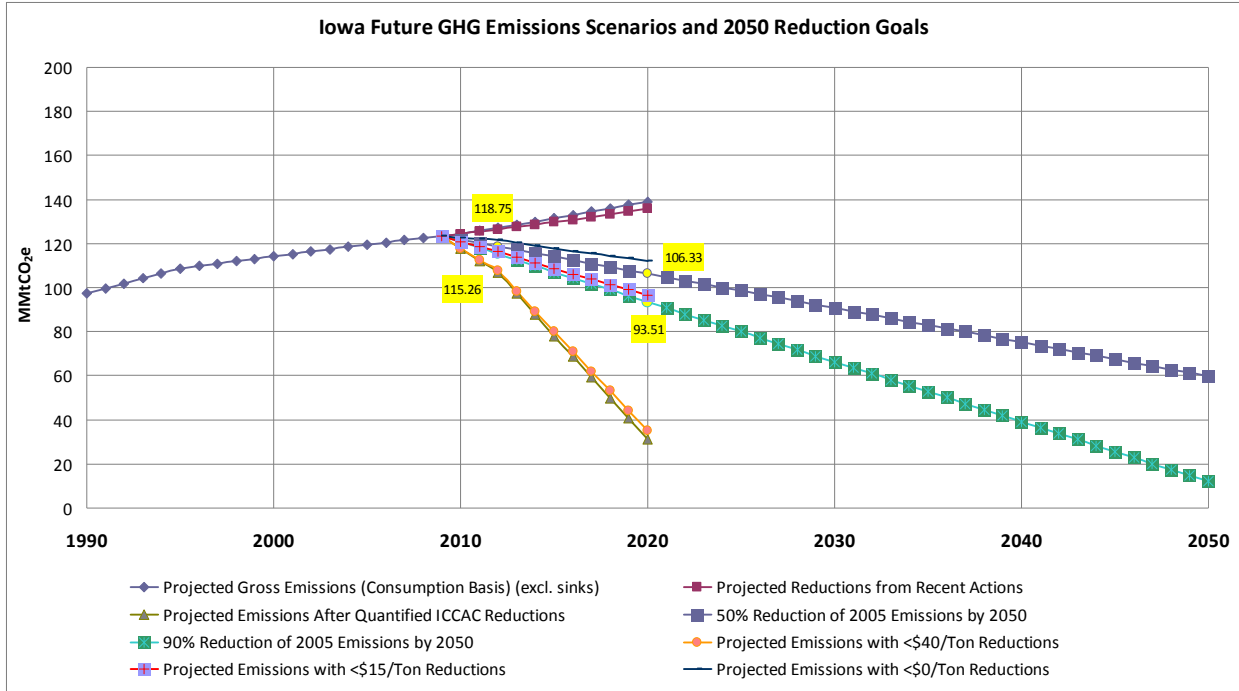
<b>Consumption Basis - Net Emissions</b>							
	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2012</b>	<b>2015</b>	<b>2020</b>
Projected GHG Emissions	75.4	94.3	92.2	97.1	100.0	104.1	111.8
Reductions from Recent Actions			0.0	0.3	0.7	1.6	3.3
Projected GHG Emissions After Recent Actions			92.2	96.8	99.3	102.6	108.5
GHG Reduction Goal Recommended by ICCAC					TBD	NA	TBD
Total GHG Reductions from ICCAC Policies					19.8	51.8	104.9
Difference Between ICCAC Reductions & Targets					TBD	NA	TBD
Projected Emissions After Quantified ICCAC Reductions					79.5	50.8	3.5

<b>Production Basis - Net Emissions</b>							
	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2012</b>	<b>2015</b>	<b>2020</b>
Projected GHG Emissions	74.8	95.2	90.9	100.9	102.7	105.6	110.4
Reductions from Recent Actions			0.0	0.3	0.7	1.6	3.3
Projected GHG Emissions After Recent Actions			90.9	100.5	102.0	104.0	107.1
GHG Reduction Goal Recommended by ICCAC					TBD	NA	TBD
Total GHG Reductions from ICCAC Policies					19.8	51.8	104.9
Difference Between ICCAC Reductions & Targets					TBD	NA	TBD
Projected Emissions After Quantified ICCAC Reductions					82.1	52.3	2.2









**Table 1**

**Agriculture, Forestry, and Waste Management (AFW) Subcommittee**

**Summary List of Recommended Priority Policy Options for Analysis**

Policy No.	Policy Option	GHG Reductions (MMtCO <sub>2</sub> e)			Net Present Value 2009–2020 (Million \$)	Cost-Effectiveness (\$/tCO <sub>2</sub> e)	Status of Option
		2012	2020	Total 2009–2020			
AFW-1	Nutrient Management						Majority (7 Objections)
	Increase Efficiency of Fertilizer	0.11	0.53	3.0	–103	–34	
	Seasonally Flooded Areas	0.002	0.009	0.05	10	194	
	Improved Nutrient Distribution	0.02	0.1	0.55	373	693	
AFW-2	Wetlands and Drainage	0.01	0.16	0.57	120	218	Not Approved (12 Objections)
AFW-3	Expanded Use of Agriculture and Forestry Biomass Feedstocks for Electricity, Heat, or Steam Production	4.4	20	113	4,281	38	Unanimous
AFW-4	Encourage Large-Scale Manure/Methane Management Capture Utilization						Unanimous
	Methane Management Capture Utilization	0.8	3	17	63	4	
	Manure Management	0.2	0.7	4.6	–38	–8	
AFW-5	Land Management to Promote Sequestration Benefits						Unanimous
	Conservation Tillage	2.9	9	56	–6	–0.1	
	Agriculture Land Conversion	0.1	0	3	199	76	
	Conservation Grazing	0.1	0	2	–116	–67	
	Afforestation	0.2	0.6	4.1	216	53	
	Unmanaged Grazed Forested Land	0.3	0.8	5.5	93.7	17	
Urban Forestry	0.1	0.4	2.4	–99	–41		
AFW-6	Cellulosic Biofuel*	2.0	9.8	49	–1,410	–29	Unanimous
AFW-7	Improved On-Farm (or First Point of Purchase) Energy Use and Efficiency						Unanimous
	Renewable Energy	0.02	0.08	0.5	23	51	
	Energy Efficiency	0.2	0.9	5.9	–610	–104	
AFW-8	Waste Management Strategies	1.5	4.1	26.5	–220	–8	Unanimous
AFW-9	Landfill Methane Energy Programs	0.2	0.8	4.8	4	0.8	Unanimous
	<b>Sector Total After Adjusting for Overlaps</b>	<b>11</b>	<b>37</b>	<b>232</b>	<b>2,019</b>	<b>9</b>	
	<b>Reductions From Recent Actions</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
	<b>Sector Total Plus Recent Actions</b>	<b>11</b>	<b>37</b>	<b>233</b>	<b>2,019</b>	<b>9</b>	

GHG = greenhouse gas; MMtCO<sub>2</sub>e = million metric tons of carbon dioxide equivalent; \$/tCO<sub>2</sub>e = dollars per metric ton of carbon dioxide equivalent.

\* Note that the costs/savings of this option include a \$1.01/gallon federal subsidy for cellulosic ethanol.

**Table 2**

**Transportation and Land Use (TLU) Subcommittee**

**Summary of Recommended Priority Policy Options**

Policy No.	Policy Option	GHG Reductions (MMtCO <sub>2</sub> e)			Net Present Value 2009–2020 (Million \$)	Cost-Effectiveness (\$/tCO <sub>2</sub> e)	Status of Option
		2012	2020	Total 2009-2020			
TLU-1	Smart Growth Bundle with Transit	0.076	0.242	1.53	-\$377	-\$245	Approved
TLU-1a	Expand and Improve Transit Infrastructure	0.004	0.026	0.127	\$7.2	+\$57	Pending
TLU-2	GHG Impacts for State and Local Capital Funding	<i>To be quantified as part of TLU-1 and TLU-1a</i>					Approved
TLU-4	Support Passenger Rail Service in Iowa	N/A	0.008	0.026	\$15	+\$597	Pending
TLU-5a	Adopt Best Workplaces for Commuters in Iowa	0.02	0.02	0.21	\$18	\$84	Approved
TLU-5b	Distributed Workplace Models	<i>Non-quantified, qualitative option</i>					Pending
TLU-6	Light Duty Vehicle Fuel Efficiency Incentives	.44	3.65	17.70	NQ	NQ	Pending
TLU-7	Fuel Efficient Operations for Light Duty Vehicles	0.11	0.65	3.41	-\$306.9	-\$90	Approved
TLU-8	New Vehicle Standards (Tailpipe GHG and Fuel Economy)	N/A	0.8	4.1	-\$246	-\$60	Approved
TLU-9	Freight Strategies (Truck and Rail)	0.39	0.63	5.9	\$30	+\$5	Approved
TLU-10	Fuel Strategies (20% Low Carbon Fuel Standard)	0.60	5.11	22.03	-\$1,359	-\$62	Approved
	<b>Sector Total after Adjusting for Overlap and Synergies</b>	<b>1.64</b>	<b>11.14</b>	<b>55.03</b>	<b>-\$2,218.50</b>	<b>\$286</b>	
	<b>Reductions from Recent Actions Federal CAFÉ 35</b>	<b>0.26</b>	<b>1.93</b>	<b>9.39</b>	<b>N/A</b>	<b>N/A</b>	
	<b>Sector Total Plus Recent Actions (As % of Reference Forecast)</b>	<b>1.9 (8.3)</b>	<b>13.07 (48)</b>	<b>64.42</b>	<b>N/A</b>	<b>N/A</b>	
	<b>Reference (BAU) Case Forecast</b>	<b>22.8 (2010)</b>	<b>27.2</b>	<b>TBD</b>	<b>N/A</b>	<b>N/A</b>	

GHG = greenhouse gas; MMtCO<sub>2</sub>e = million metric tons of carbon dioxide equivalent; \$/tCO<sub>2</sub>e = dollars per metric ton of carbon dioxide equivalent; N/A = not applicable

Note: negative numbers indicate *cost savings*

**Table 3**

**Energy Efficiency and Conservation (EEC) Subcommittee**

**Summary List of Recommended Priority Policy Options for Analysis**

Policy No.	Policy Option	CO <sub>2</sub> Reduction 2012	CO <sub>2</sub> Reduction 2020	Total 2009–2020	Net Present Value 2009–2020 (Million \$)	Cost/Ton (\$/tCO <sub>2</sub> e)	Status of Option
EEC-1	Consumer Education Programs	<i>Not quantified</i>					Unanimous
EEC-2	Demand-Side Management (DSM)/Energy Efficiency Programs for Natural Gas	0.08	1.24	5.43	–\$191.77	–\$35.29	Super Majority (4 objections)
EEC-3	Financial Mechanisms for Energy Efficiency	1.62	6.11	36.81	–\$805.05	–\$21.87	Super Majority (1 objection)
EEC-4	Improved Building Codes for Energy Efficiency	0.05	0.40	1.89	–\$46.27	–\$24.44	Super Majority (5 objections)
EEC-5	Incentive Mechanisms for Achieving Energy Efficiency	0.35	3.29	16.33	–\$350.79	–\$21.48	Unanimous
EEC-6	Promotion and Incentives for Improved Design and Construction in the Private Sector	0.00	0.12	0.46	–\$11.36	–\$24.57	Super Majority (1 objection)
EEC-7	Training and Education for Builders and Contractors	<i>Not quantified</i>					Unanimous
EEC-8	Focus on Specific Residential Market Segments	0.09	0.98	4.83	–\$122.53	–\$25.37	Unanimous
EEC-9	Midwestern Governors Association Energy Security and Climate Stewardship Platform	0.13	4.13	17.14	–\$375.69	–\$21.92	Majority (9 objections)
EEC-10	Energy Management Training/Training of Building Operators	0.10	1.29	5.48	–\$129.49	–\$23.63	Pending
EEC-11	Rate Structures and Technologies To Promote Reductions	0.04	0.21	1.20	–\$25.73	–\$21.45	Unanimous
EEC-12	Demand-Side Management (DSM)/Energy Efficiency Programs for Electricity	0.39	4.38	20.33	–\$444.81	–\$21.88	Super Majority (4 objections)
EEC-13	Government Lead by Example: Improved Design, Construction, and Energy Operations in New and Existing State and Local Government Buildings	0.08	0.36	1.97	1.04	0.53	Pending
EEC-14	More Stringent Appliance Efficiency Standards	0.94	2.20	17.33	–\$708.15	–\$40.85	Pending
	<b>Sector Total After Adjusting for Overlaps</b>	<b>1.1</b>	<b>8.6</b>	<b>43.2</b>	<b>–\$1,064.5</b>	<b>–\$24.7</b>	
	<b>Reductions From Recent Actions: EISA (2007) and Executive Orders #6 and 41</b>	<b>0.44</b>	<b>1.42</b>	<b>9.19</b>			
	<b>Sector Total Plus Recent Actions</b>	<b>1.6</b>	<b>10.0</b>	<b>52.3</b>			

CO<sub>2</sub> = carbon dioxide; DSM = demand-side management; NPV = net present value; \$/tCO<sub>2</sub>e = dollars per metric ton of carbon dioxide equivalent; EISA = Energy Independence and Security Act (2007).

Negative values in the Net Present Value and the Cost-Effectiveness columns represent net cost savings.

The numbering used to denote the above policy recommendations is for reference purposes only; it does not reflect prioritization among these important policy recommendations.

**Table 4**

**Clean & Renewable Energy (CRE) Subcommittee**

**Summary List of Recommended Priority Policy Options for Analysis**

Policy No.	Policy Option	CO <sub>2</sub> Reduction 2012	CO <sub>2</sub> Reduction 2020	Total 2009–2020	Net Present Value 2009–2020 (Million \$)	Cost/ton (\$/tCO <sub>2</sub> e)	Change in Generation Cost in 2020 \$/MWh*	Status of Option	
CRE-1	Education	<i>Not Quantified</i>							Unanimous
CRE-2	Technology Initiatives, Including Renewables	4.7	33.4	192.6	\$5,653	\$29.4	\$25.7	Super Majority (3 Objections)	
CRE-3a	Federal Cap and Trade, Including Offsets To Promote Renewables	<i>Not Quantified</i>							Pending
CRE-3b	MGA Cap and Trade, Including Offsets To Promote Renewables	<i>Not Quantified</i>							Pending
CRE-4a	Decarbonization Fund	2.2	11.4	74.1	\$316	\$4.3	\$3.1	Super Majority (2 Objections)	
CRE-4b	Carbon Tax (All Sectors, Except AFW)	<i>Quantified Separately--See Text</i>							Pending
CRE-5a	Performance Standards (50% Reduction by 2050)	4.9	11.4	95.4	\$2,650.6	\$27.8	\$7.3	Super Majority (3 Objections, 1 Abstention)	
CRE-5b	Performance Standards 90% Reduction by 2050	5.7	16.1	124.3	\$3,480	\$28	\$10.3	Super Majority (3 Objections, 1 Abstention)	
CRE-6	Voluntary GHG Commitments	<i>Not Quantified</i>							Pending
CRE-7	Policies Related to Nuclear Power	0.0	9.7	9.7	\$268	\$27.6	\$4.5	Pending	
CRE-8a	Support for Grid-Based Renewable Energy & Development (400K MWh/yr)	0.3	4.8	22.9	\$557.6	\$24.4	\$3.0	Pending	
CRE-8b	Support for Grid-Based Renewable Energy & Development (MGA Target of 20% of retail sales by 2020)	0.0	2.3	4.3	\$93.4	\$21.8	\$1.5	Pending	
CRE-9	Transmission System Upgrading	<i>Not Quantified</i>							Pending
CRE-10	R&D for Emerging Technologies and Corresponding Incentives	<i>Not Quantified</i>							Pending
CRE-11	Distributed Generation/Co-Generation	0.0	0.1	0.5	\$14	\$29.1	\$0.1	Pending	

CRE-12	Combined Heat and Power	0.3	2.1	13.6	-\$564.3	-\$41.4	\$0.0	Unanimous
CRE-13	Pricing Strategies To Promote Renewable Energy and/or CHP	1.2	5.6	35	\$1,128	\$32.1	\$4.7	Super Majority (3 Objections)
	<b>Sector Total After Adjusting for Overlaps</b>	<b>6</b>	<b>48</b>	<b>233</b>	<b>\$5,921</b>	<b>\$25</b>		
	<b>Reductions From Recent Actions</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>		
	<b>Sector Total Plus Recent Actions</b>	<b>6</b>	<b>48</b>	<b>233</b>	<b>\$5,921</b>	<b>\$25</b>		

CO<sub>2</sub> = carbon dioxide; Reduct. = Reduction; \$/tCO<sub>2</sub>e = dollars per metric ton of carbon dioxide equivalent; \$/MWh = dollars per megawatt-hour; MGA = Midwestern Governors Association; GHG = greenhouse gas; 400k MWh/yr = 400,000 megawatt-hours per year; R&D = research and development; CHP = combined heat and power.

\* Represents the change in the cost of generation in \$/MWh in the Policy case from the No-Policy case to meet Iowa's electricity demand or for exports.

Negative values in the Net Present Value and the Cost-Effectiveness columns represent net cost savings.

The numbering used to denote the above policy recommendations is for reference purposes only; it does not reflect prioritization among these important policy recommendations.

**Table 5**

**Cross-Cutting Issues Subcommittee**

**Summary List of Pending Policy Options**

Policy No.	Policy Option	GHG Reductions (MMtCO <sub>2</sub> e)			Net Present Value 2009–2020 (Million \$)	Cost-Effectiveness (\$/tCO <sub>2</sub> e)	Status of Option
		2012	2020	Total 2009–2020			
CC-1	GHG Inventories, Forecasting, Reporting, and Registry	<i>Not Quantified</i>					Unanimous Approval
CC-2	Statewide GHG Reduction Goals and Targets	<i>Not Quantified</i>					Pending
CC-3	State and Local Government GHG Emissions (Lead by Example)	<i>Not Quantified</i>					Unanimous Approval
CC-4	Public Education and Outreach	<i>Not Quantified</i>					Unanimous Approval
CC-5	Tax and Cap Policies—Lead Transferred to the CRE SC	<i>Not Quantified</i>					Transferred
CC-6	Seek Funding for Implementation of ICCAC Recommendations	<i>Not Quantified</i>					Unanimous Approval
CC-7	Adaptation and Vulnerability	<i>Not Quantified</i>					Unanimous Approval
CC-8	Participate in Regional and Multistate GHG Reduction Efforts	<i>Not Quantified</i>					Unanimous Approval
CC-9	Encourage the Creation of a Business-Oriented Organization To Facilitate Investment in Climate-Related Business Opportunities and To Share Information and Strategies, Recognize Successes, and Support Aggressive GHG Reduction Goals	<i>Not Quantified</i>					Unanimous Approval

GHG = greenhouse gas; MMtCO<sub>2</sub>e = million metric tons of carbon dioxide equivalent; \$/tCO<sub>2</sub>e = dollars per metric ton of carbon dioxide equivalent; ICCAC = Iowa Climate Change Advisory Council; CRE = Clean and Renewable Energy; SC = Subcommittee.