

Executive Summary

Creation of the Colorado Climate Project

The Rocky Mountain Climate Organization (RMCO) undertook the Colorado Climate Project to bring Coloradans together to reduce the state's contribution and vulnerability to climate change. The project was inspired by and patterned after similar efforts undertaken by state governments around the country. Like many of those efforts, the Colorado Climate Project was carried out in partnership with the Center for Climate Strategies (CCS), which helped design the process and provided technical analyses for and facilitation services for this project, as CCS has done for state government advisory panels in several states.

RMCO's Project Directors of the Colorado Climate Project appointed a blue-ribbon Climate Action Panel (CAP) and charged them to develop recommendations for actions that can be taken in Colorado by the state government, local governments, water providers, the private sector, and individuals to reduce the state's contribution and vulnerability to a changed climate. This report is the culmination of the work of 116 Coloradans who worked as members of and alternates to the CAP and the six Policy Work Groups (PWGs) that supported the CAP.

Greenhouse Gas Emissions Inventory and Projections

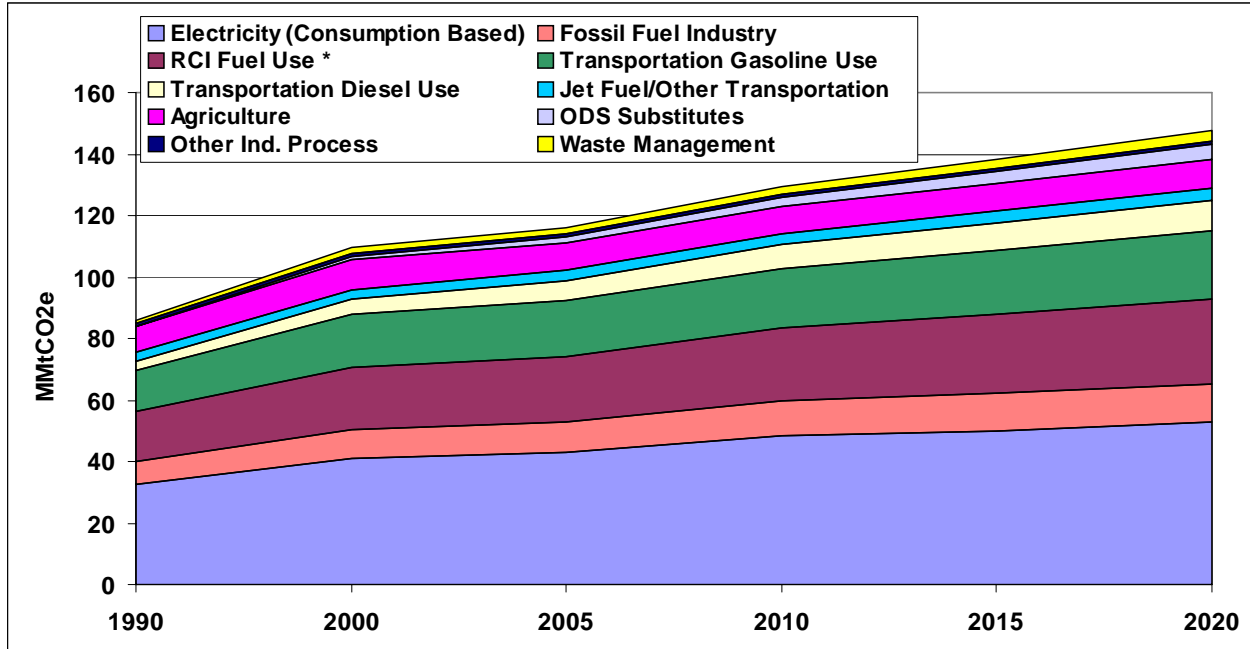
In January 2007, CCS prepared a preliminary draft greenhouse gas (GHG) emissions inventory and reference case projection for the Colorado Department of Public Health and Environment (CDPHE) that was separately provided to the CAP and its PWGs to assist them in understanding past, current, and possible future GHG emissions in Colorado, and thereby inform the policy development process. The preliminary draft *Inventory and Projections* was improved by incorporating comments provided by the CAP and PWGs. As shown in Figure ES-1, the *Inventory and Projections* revealed substantial emissions growth rates and related mitigation challenges. Colorado's gross emissions of GHGs grew by 35% between 1990 and 2005, slightly more than twice the national average of 16%. Colorado's emissions growth was driven largely by the growth of Colorado's population, as the state's emissions on a per-capita basis stayed essentially constant between 1990 and 2005. Under current law, Colorado's gross GHG emissions (not counting sequestration) are projected as rising fairly steeply to 147.5 million metric tons (MMt) of carbon dioxide equivalent (CO₂e) by 2020, or 71% over 1990 levels.

CAP Policy Recommendations

The CAP recommends 70 policy actions. Among those CAP members present and voting, sixty-one policy recommendations were approved unanimously; seven were approved by a super majority, with fewer than five votes against them; and two were approved by a simple majority. For each of 10 recommendations (four of which were among the recommendations not approved unanimously), at least one CAP member expressed qualifications but did not object to it. These expressions of qualifications, which CAP members called "yes but" votes, allowed members to express an objection or concern to some of the specific details of a policy recommendation or the supporting analysis considered by the CAP while supporting the overall concept of the policy. Explanations of both individual objections and qualifications are in the appendices to this report, in the detailed accounts of each CAP recommendation (except that the explanation for the one

objection to a water adaptation recommendation is in Chapter 8, where those recommendations are detailed).

Figure ES-1. Gross GHG emissions by sector, 1990–2020: historical and projected (consumption-based approach) business-as-usual base case

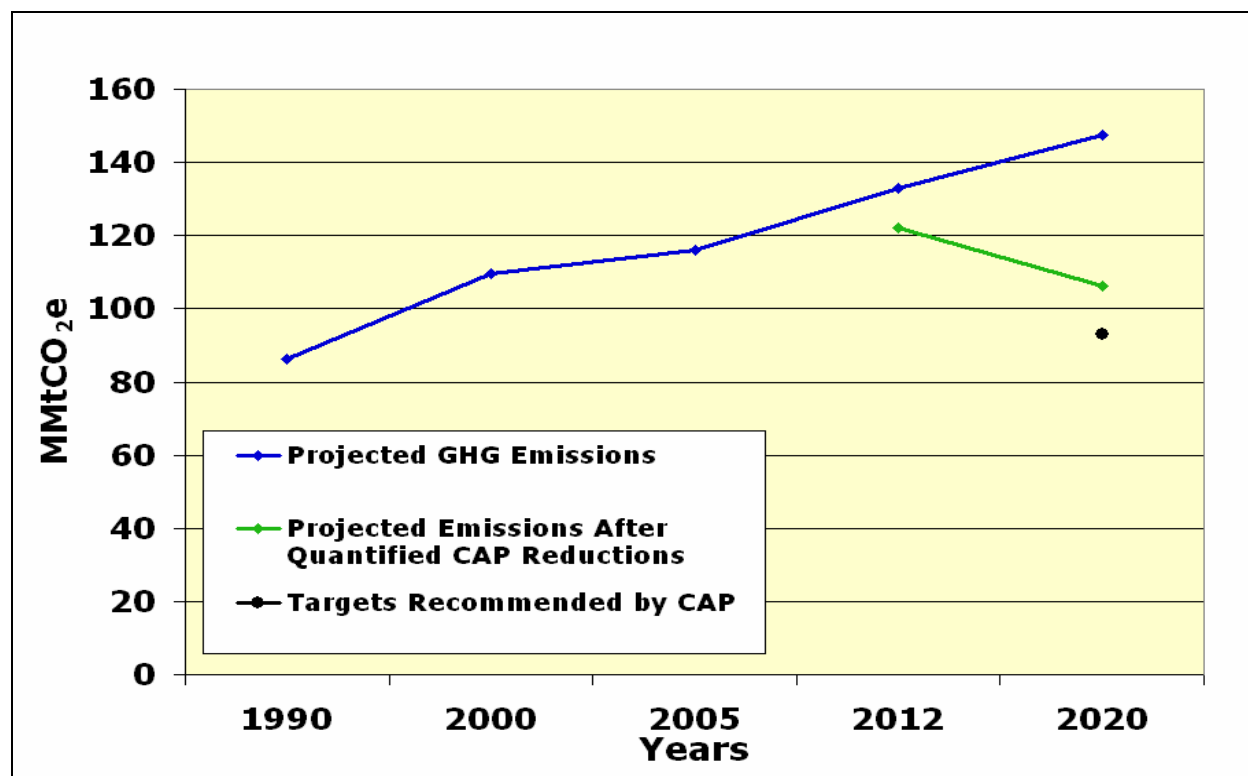


* RCI = direct fuel use in residential, commercial, and industrial sectors; ODS Substitutes = ozone depleting substances substitutes. Other Industrial Processes include process-related GHG emissions from cement, lime, and soda ash manufacturing; semiconductor manufacture; soda ash, limestone, and dolomite use; electricity transmission and distribution systems. Ozone Depleting Substance (ODS) substitutes (for hydrofluorocarbons, etc) are used in cooling and refrigeration equipment for industrial and commercial applications as well as for vehicle air conditioners.

Figure ES-2 and Table ES-1 present a summary of some of the recommendations. In Figure ES-2:

- Actual (for 1990, 2000, and 2005) and projected (for 2012 and 2020) levels of Colorado’s gross GHG emissions on a consumption basis are shown by the blue line. (The consumption-based approach accounts for emissions associated with the generation of electricity in-state and imported from out-of-state to meet Colorado’s demand for electricity.)
- Projected emissions if all of the CAP’s 33 recommendations that were analyzed quantitatively with respect to its GHG reduction potential are completely implemented and the estimated reductions are fully achieved are shown by the green line. (Note that other CAP recommendations would have the effects of reducing emissions, but those reductions were not analyzed quantitatively and they are not reflected in the green line.)
- Projected emissions associated with the CAP’s recommendation that Colorado set a target to reduce its GHG emissions economy-wide in the vicinity of 20% below 2005 levels by 2020 are shown by the black dot.

Figure ES-2. Annual GHG emissions: reference case projections and CAP recommendations (consumption-basis, gross emissions)



The CAP approved 55 recommendations to reduce emissions, of which 33 were analyzed quantitatively to estimate their effects on emissions. The analyzed measures were estimated to have a cumulative effect of reducing emissions by about 41.3 MMtCO₂e in 2020, enough by themselves to achieve over three quarters of the reductions necessary to meet the 2020 goal. The 26 measures analyzed in terms of their cost-effectiveness were estimated to have a total net savings of about \$2.6 billion between now and 2020. That is because the most effective way to reduce emissions often is to improve energy efficiency, which both cuts emissions and saves money.

Table ES-1. Annual emissions: reference case projections, and impact of CAP recommendations (consumption-basis, gross emissions)

Greenhouse Gas (GHG) Emissions (MMtCO ₂ e)					
	1990	2000	2005	2012	2020
Actual/projected GHG emissions	86.1	109.6	116.1	132.8	147.5
Projected emissions compared to 2005				+14%	+27%
Total GHG reductions from 33 analyzed CAP recommendations				-10.6	-41.3
Projected emissions after above reductions				122.2	106.2
2020 target recommended by CAP					92.9
2020 target compared to actual/forecast				-20%	-30%

The CAP chose to recommend goals for emission reductions to be achieved by 2020 and 2050, mindful of scientists' conclusions that global GHG emissions have to be reduced substantially by

2050, compared to 2000 levels, in order to stabilize global temperatures, and that emission reductions in the next two to three decades will have a large impact on opportunities to achieve that kind of stabilization. Accordingly, the CAP recommends that the Governor of Colorado set goals for reducing GHG emissions in Colorado in the vicinity of a 20% reduction in GHG emissions by 2020 and an 80% reduction by 2050, both compared to 2005 levels on a gross emissions/consumption basis. The CAP believes the goals should guide actions in the state, but should not be a firm cap.

If the 2020 goal were achieved, Colorado's emissions in 2020 would be reduced 37% to 92.9 million metric tons of GHGs, compared to 147.5 MMtCO_{2e} projected under current law. The Colorado target would fall within the range of statewide emission goals already set by other western states, including Arizona (45% below projected emissions in 2020), Oregon (44%), New Mexico (33%), California (28%), and Washington (28%).

If adopted, the 33 recommendations for emission reductions that were analyzed quantitatively could achieve 75% of the 2020 goal chosen by the CAP. While the CAP's 22 other GHG mitigation recommendations were not readily quantifiable, many of them would likely achieve additional reductions. In addition, the CAP believes other reasonable measures to reduce emissions beyond those recommended by the panel are available now, and emerging technologies hold the potential to substantially reduce emissions even more.

The CAP also adopted 15 recommendations for adaptation to future climate changes. They include 14 policies that, together, outline a road map for dealing with the projected effects of climate change on the state's water supplies, which may well amount to Colorado's greatest vulnerability to climate change. Another recommendation is that the state government assess Colorado's particular vulnerabilities to climate change and develop specific adaptation plans.

Table ES-2 provides a summary by sector of the estimated cumulative impacts of implementing all of the CAP's recommendations. The table shows the estimated GHG reductions; costs or savings from each policy recommendation and, its cost-effectiveness (cost or savings per ton of reduction) upon which the cumulative impacts in Table ES-3 are based. Note that the cumulative impacts shown in Table ES-3 account for overlaps between policies by eliminating potential double counting of emission reductions and costs or cost savings.

Table ES-2. Summary by sector of estimated impacts of implementing all of the CAP recommendations

Cumulative Reductions and Costs/Savings	2012 GHG Reductions (MMtCO ₂ e)	2020 GHG Reductions (MMtCO ₂ e)	2007–2020 GHG Reductions (MMtCO ₂ e)	2007–2020 Costs (Savings) (Net Present Value Million \$)	2007–2020 Cost-Effectiveness (\$/tCO ₂ e)
	<i>From 33 recommendations analyzed for GHG reductions</i>			<i>From 26 recommendations analyzed for costs and cost savings</i>	
Residential Commercial and Industrial (RCI) Sector Total Adjusted for Overlaps	3.7 ¹	15.1 ¹	86.0 ¹	–\$153 ²	–\$2/ton ²
Energy Supply (ES) Sector Total Adjusted for Overlaps	3.0 ³	9.1 ³	58.8 ³	\$526 ⁴	\$10/ton ⁴
<i>Adjustments for Overlaps Between RCI and ES Recommendations</i>	<i>[–0.3]</i>	<i>[–2.0]</i>	<i>[–8.6]</i>	<i>[–\$10.0]</i>	
Transportation and Land Use (TLU) Sector Total Adjusted for Overlaps	2.1 ⁵	7.8 ⁵	46.7 ⁵	–\$3,185 ⁶	–\$141/ton ⁶
Agriculture, Forestry, and Waste Management (AFW) Sector Total Adjusted for Overlaps	2.2	11.5	66.0	\$252	\$4/ton
<i>Adjustments for Overlaps Between AFW and ES Recommendations</i>	<i>[–0.04]</i>	<i>[–0.21]</i>	<i>[–1.40]</i>	<i>[–\$0]</i>	<i>[–\$0/ton]</i>
Cross-Cutting (CC) Sector Total	N/A	N/A	N/A	N/A	N/A
Water Adaptation (WA) Sector Total	N/A	N/A	N/A	N/A	N/A
Totals	<i>From 33 recommendations analyzed for GHG reduction</i>			<i>From 26 recommendations analyzed for costs and cost savings</i>	
	10.7	41.3	247.5	–\$2,570	Not estimated

Notes: Negative numbers indicate cost savings. N/A = not available.

Table ES-3. Summary of CAP’s 70 policy recommendations by sector

Notes: Negative numbers indicate cost savings. The cost (savings) shown are calculated in terms of net present value in constant 2005 dollars using a 5% annual real discount rate for the period 2008 through 2020. Capital investments are represented in terms of levelized or amortized costs through 2020.

¹ Totals from all 9 RCI recommendations with estimated GHG reductions.

² Totals from only those 7 RCI recommendations with estimated costs/cost savings.

³ Totals from all 6 ES recommendations with estimated GHG reductions.

⁴ Totals from only those 5 ES recommendations with estimated costs/cost savings.

⁵ Totals from all 8 TLU recommendations with estimated GHG reductions.

⁶ Totals from only those 4 TLU recommendations with estimated costs/cost savings.

Residential, Commercial, and Industrial Policy Recommendations

	Policy Recommendation	GHG Reductions (MMtCO ₂ e)			Costs (Savings) 2007–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Climate Action Panel Action
		2012	2020	Total 2007–2020			
RCI-1	Expand demand side management programs of all electric and gas utilities, ramped up to reduce energy use by 1% per year by 2013.	0.6	5.2	24	–\$853	–\$32/ton	Unanimous Consent (Several qualified approvals)
RCI-2	Revolving loans to reduce energy use in state and local government buildings.	0.2	0.5	3.7	–\$67	–\$18/ton	Super Majority (1 objection)
RCI-3	Upgrade the state’s energy requirements for local building codes every 3 years, and improve enforcement of building codes.	0.3	2.7	13.0	N/A	N/A	Unanimous Consent
RCI-4 (total)	Targets and programs for beyond-code reductions in energy use in new government, residential, and commercial buildings.	1.0	2.4	20.4	\$1,550	\$76/ton	Unanimous Consent
	<i>Government subtotal:</i>	0.4	0.6	6.0	\$348	\$58/ton	
	<i>Commercial subtotal:</i>	0.5	1.4	11.2	\$1,219	\$109/ton	
	<i>Residential subtotal:</i>	0.2	0.4	3.2	–\$17	–\$5/ton	
RCI-5	Inverted electricity block rates for all residential and commercial consumers to fund utility energy efficiency programs.	1.6	6.7	38.2	–\$1,135	–\$30/ton	Majority (7 objections)
RCI-6	Low interest loans to fund energy efficiency retrofits for commercial and industrial buildings.	0.5	1.8	11.7	–\$334	–\$28/ton	Unanimous Consent (2 qualified approvals)
RCI-7	Electricity smart metering with time-of-use rates and in-home or in-office displays for all residential, commercial, and industrial consumers.	2.0	2.6	25.4	–\$844	–\$33/ton	Unanimous Consent
RCI-8	Tax credits for renewable energy systems in new and existing residential, commercial, and industrial buildings.	N/A	N/A	N/A	N/A	N/A	Unanimous Consent
RCI-9	Promote commercial and industrial combined heat and power (CHP) systems.	0.3	1.4	8.3	–\$25	–\$3/ton	Unanimous Consent
RCI-10	Statewide program for voluntary GHG reductions by businesses.	0.6	1.0	4.5	N/A	N/A	Unanimous Consent
RCI-11	Inverted electricity block rates for all residential and commercial consumers, recovering only cost of service.	N/A	N/A	N/A	N/A	N/A	Unanimous Consent
	RCI Sector GHG reduction total of 9 analyzed policies after adjusting for overlaps among policies	3.7	15	86	N/A	N/A	
	RCI Sector cost-effectiveness total of 7 analyzed policies with cost analysis after adjusting for overlaps among policies				–\$153	–\$2/ton	

Energy Supply Policy Recommendations

	Policy Recommendation	GHG Reductions (MMtCO ₂ e)			Costs (Savings) 2007–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Climate Action Panel Action
		2012	2020	Total 2007–2020			
ES-1	Tax credits and incentives to finance renewable energy generation facilities.	Benefits are quantified in policy ES-2					Unanimous Consent
ES-2	Increase renewable portfolio standards to 30% for investor-owned electric utilities and 15% for municipal and co-op utilities, with no more than 85% of renewable energy from centralized wind power.	1.9	4.9	34	\$524	\$16/ton	Super Majority (3 objections) (1 qualified approval)
ES-3	Consider adoption of Xcel's clean energy portfolio standard on a state, regional, or national basis.	Non-specific policy was not quantified					Majority (9 objections)
ES-4	Require all electric utilities to plan cooperatively for electricity transmission infrastructure investments that support renewable resources.	Non-quantitative policy proposal analyzed					Unanimous Consent
ES-5	Consider applying a price to CO ₂ emissions (such as cap and trade or tax) on a state, regional, or national basis.	Non-specific policy not quantified					Super Majority (1 objection) (1 qualified approval)
ES-6	Assess a public benefit charge on all electric utility bills to fund renewable energy programs.	Policy not quantified					Super Majority (3 objections) (1 qualified approval)
ES-7	Adopt structural changes to facilitate large businesses and universities to invest in combined heat and power (CHP) and distributed generation (DG) systems.	0.4	1.1	7.3	\$110	\$15/ton	Unanimous Consent
ES-8	Work with neighboring states to form a regional CO ₂ transportation and sequestration collaborative.	Non-quantitative proposal not quantified					Unanimous Consent
ES-9	Low interest loans to Colorado companies and universities for research and development of carbon emissions reduction technology, funded at \$100M/yr through surcharge on all electricity bills.	R&D benefits not quantified					Unanimous Consent
ES-10	Evaluate and, if appropriate, seek funding for advanced fossil fuel generation with carbon capture demonstration project.	Non-specific policy not quantified					Unanimous Consent
ES-11	Statewide mapping and development of small hydro-power, geothermal, and biomass renewable power sources.	0.0	0.8	3.1	\$123	\$40/ton	Unanimous Consent
ES-12	Review costs and emission reduction potential of nuclear power.	Non-specific policy not quantified					Unanimous Consent
ES-13	Adopt policies to promote a 2% increase in efficiency of existing power generators by 2020.	Costs not quantified—savings ca. 1 MMtCO ₂ /yr by 2020					Unanimous Consent
ES-14	Reduce GHG emissions from oil and gas operations 35% by 2020.	0.8	2.6	16	\$12	\$0.8/ton	Unanimous Consent
ES-15	Establish a CO ₂ emissions performance standard of no more than 1,100 lbsCO ₂ /MWh for new non-peaking power plants and those older than 60 years.	0.5	2.3	13	–\$14	–\$1/ton	Super Majority (5 objections)

	Policy Recommendation	GHG Reductions (MMtCO ₂ e)			Costs (Savings) 2007–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Climate Action Panel Action
		2012	2020	Total 2007–2020			
	Energy Supply Sector totals of 6 analyzed policies (including ES-13) after adjusting for overlaps among policies	3	9	59	N/A	N/A	
	Energy Supply Sector totals of 5 policies with cost estimates (not including ES-13) after adjusting for overlaps				\$526	\$10/ton	

Transportation and Land Use Policy Recommendations

	Policy Recommendation	GHG Reductions (MMtCO ₂ e)			Costs (Savings) 2007–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Climate Action Panel Action
		2012	2020	Total 2007–2020			
TLU-1	Reduce light-duty vehicle miles traveled 2% by 2020 by promoting “smart growth” land use planning and development. Require that GHG emissions be considered in long-range transportation plans by 2010.	0.08	0.47	2.43	Less than \$0	Less than \$0/ton	Unanimous Consent
TLU-2	Incentives for the purchase of low-GHG vehicles. [An alternative if the TLU-6 clean car standards are not implemented.]	Quantified as part of TLU-6					Unanimous Consent
TLU-3	Reduce light-duty vehicle miles traveled 6% by 2020 by improving transit service quality and funding expansion of transit infrastructure.	0.17	0.97	5.09	N/A	N/A	Unanimous Consent
TLU-4	Reduce heavy-duty vehicle idling.	0.07	0.11	0.91	–\$123	–\$134/ton	Unanimous Consent
TLU-5	Adopt a low carbon fuels standard that will reduce carbon intensity of passenger vehicle fuels by 10% by 2020.	0.38	2.21	16.1	N/A	N/A	Unanimous Consent
TLU-6	Adopt California GHG emission standards for cars and trucks.	0.70	3.40	18.8	–\$1,880	–\$100/ton	Unanimous Consent
TLU-7	Expand transit use marketing and employer-sponsored transit fare programs.	Quantified as part of TLU–3					Unanimous Consent
TLU-8	Move toward basing motor vehicle insurance on the distances vehicles are driven.	0.32	0.94	7.19	Less than \$0	Less than \$0/ton	Unanimous Consent
TLU-9	Local parking management programs to encourage alternative travel choices and transit-oriented development.	0.03	0.03	0.34	–\$37	–\$110	Unanimous Consent
TLU-10	Require employers with more than 100 employees to offer commuter benefits programs.	0.42	0.45	4.77	–\$1,145	–\$240/ton	Unanimous Consent
TLU-11	Incorporate vehicle maintenance, operation, and transportation choice GHG reduction information in driver training and education.	Not quantified					Unanimous Consent
	TLU Sector GHG reduction total of 8 analyzed policies after adjusting for overlaps among policies	2.14	7.84	46.7	N/A	N/A	
	TLU Sector cost-effectiveness total of 4 analyzed policies with cost estimates after adjusting for overlaps among policies				–\$3,185	–\$141/ton	

Agriculture, Forestry, and Waste Management Policy Recommendations

	Policy Recommendation	GHG Reductions (MMtCO ₂ e)			Costs (Savings) 2007–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Climate Action Panel Action
		2012	2020	Total 2007–2020			
AFW-1	Achieve no-till operation of half of croplands by 2020 and increase nitrogen fertilizer efficiency by 20%.	0.57	0.78	7.7	–\$57	–\$7/ton	Unanimous Consent
AFW-2	Implement methane capture and energy recovery on manure management projects on 80% of animal feeding operations by 2020.	0.01	0.32	1.8	\$66	\$36/ton	Unanimous Consent (1 qualified approval)
AFW-3	Reduce on-farm petro-diesel use 20% by 2020, and reduce electricity use from fossil fuels 40% through energy efficiency and on-site renewable sources generation.	0.14	0.64	3.8	–\$150	–\$40/ton	Unanimous Consent
AFW-4	Incentives for the production of biodiesel fuel from oilseed crops, waste vegetable oil, or other sources to offset 40% of fossil diesel fuel use by 2020.	0.02	0.22	1.1	\$13	\$12/ton	Unanimous Consent (3 qualified approvals)
AFW-5	Increase in-state ethanol production, using GHG-superior feedstocks and production methods, to 400 million gallons per year above BAU by 2020.	0.39	3.1	15	\$58	\$3/ton	Unanimous Consent (3 qualified approvals)
AFW-6	Preserve forest lands (line 1) and grasslands (line 2) to reduce the rate of conversion to developed uses by 25% by 2020.	0.10 0.05	0.24 0.14	1.7 1.0	\$44 \$31	\$26/ton \$32/ton	Unanimous Consent
AFW-7	Increase the use of biomass from forest health and fire risk treatment for energy production, using 20% of harvested wood by 2020.	0.08	0.20	1.4	–\$104	–\$75/ton	Unanimous Consent
AFW-8	Divert 75% of wastes from landfills by 2020 through source reduction, enhanced recycling, and composting programs.	0.48	4.6	24	\$311	\$13/ton	Unanimous Consent
AFW-9	Control or capture landfill methane to achieve 50% reduction from BAU by 2020.	0.33	1.2	7.5	–\$0.1	–\$0.02/ton	Unanimous Consent
AFW-10	Plant 3.4 million new trees statewide by 2020 through expanded urban forestry programs.	0.03	0.08	0.59	\$40	\$79/ton	Unanimous Consent (1 qualified approval)
	AFW Sector Total of Analyzed Policies After Adjusting for Overlaps	2.2	11.5	66	\$252	\$4 /ton	

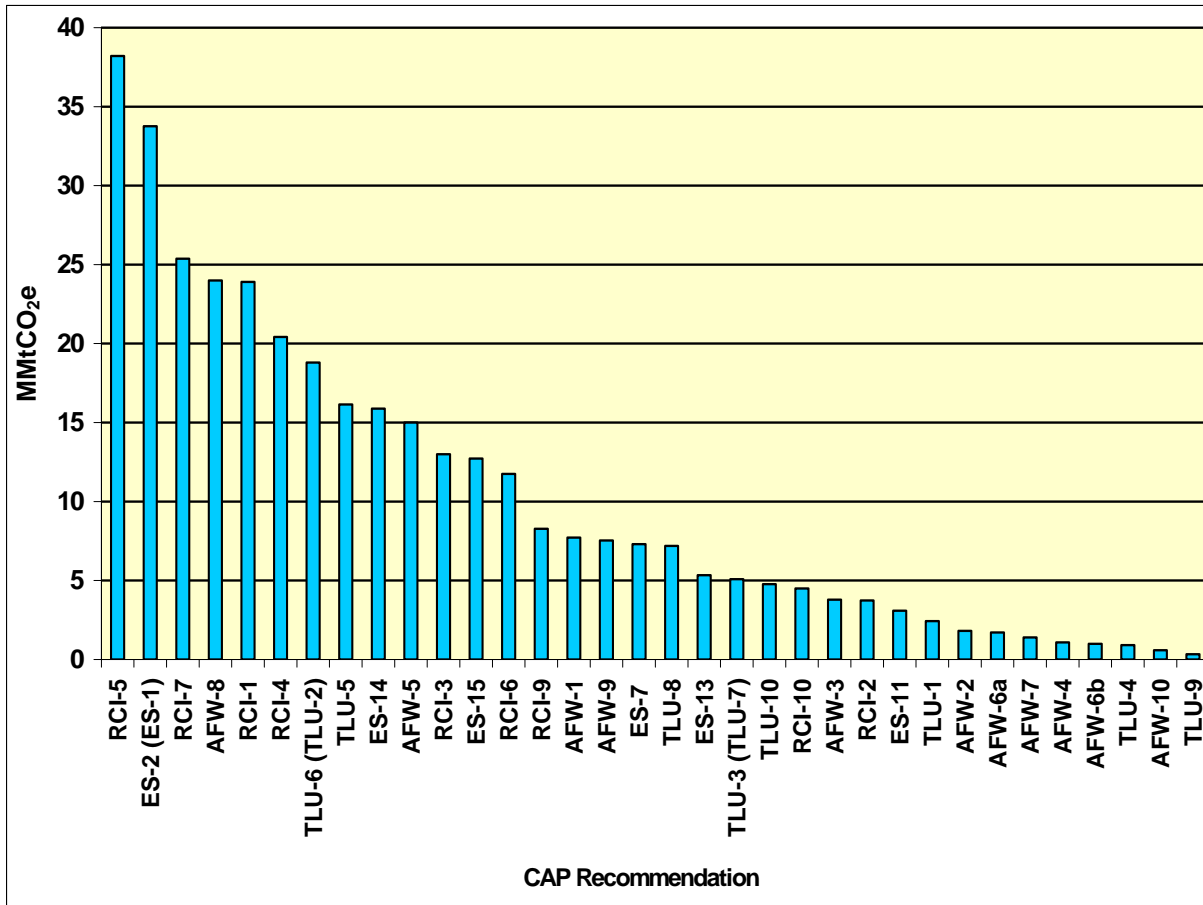
Cross-Cutting Issues Policy Recommendations

	Policy Recommendation	Analysis	Climate Action Panel Action
CC-1	Periodically update GHG inventories and forecasts.	<i>Not Quantified</i>	Unanimous Consent
CC-2	State development of annual GHG reporting protocols for all sources, including mandatory reporting for significant sources.	<i>Not Quantified</i>	Unanimous Consent
CC-3	State development of capacity to participate in the national <i>Climate Registry</i> to measure, track, and record emissions reductions.	<i>Not Quantified</i>	Unanimous Consent
CC-4	The governor should set statewide GHG reduction goals and targets to achieve in the vicinity of a 20% reduction by 2020 and 80% by 2050, both compared to 2005 levels.	<i>Not Quantified</i>	Super Majority (1 objection) (5 qualified approvals)
CC-5	Set state and local government reduction targets for their own GHG emissions; the state target should be at least an amount consistent with CC-4 levels.	<i>Not Quantified</i>	Unanimous Consent
CC-6	Promote adoption of comprehensive local government climate action plans.	<i>Not Quantified</i>	Unanimous Consent
CC-7	State and local government public education and outreach efforts to support GHG reduction programs, policies, and goals.	<i>Not Quantified</i>	Unanimous Consent
CC-8	A public-private partnership to seek funding for GHG reduction measures and development of a new energy economy in Colorado.	<i>Not Quantified</i>	Unanimous Consent
CC-9	State government assessment of vulnerabilities to climate change and development of adaptation plans.	<i>Not Quantified</i>	Unanimous Consent

Water Adaptation Policy Recommendations

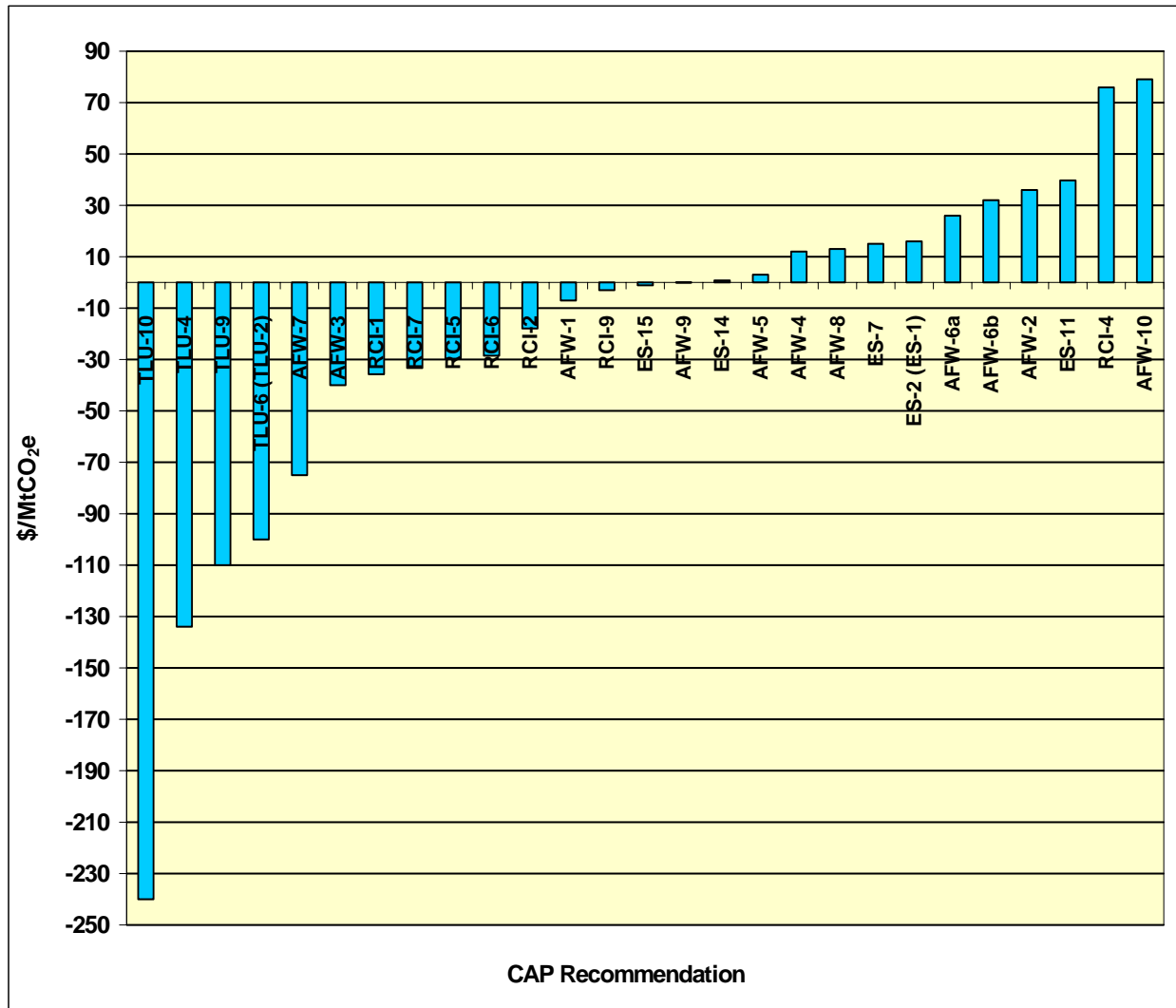
	Policy Recommendation	Analysis	Climate Action Panel Action
WA-1	Public officials exercise leadership in addressing climate change effects on water supplies.	<i>Not Quantified</i>	Unanimous Consent
WA-2	Water managers consider climate change in all water supply decisions.	<i>Not Quantified</i>	Unanimous Consent
WA-3	Climate change effects considered in the new Colorado Water Conservation Board study of Colorado River water availability.	<i>Not Quantified</i>	Unanimous Consent
WA-4	State government develop mechanisms for compact calls for each major river basin.	<i>Not Quantified</i>	Unanimous Consent
WA-5	Assessment of knowledge about climate change effects on Colorado's water resources. An assessment of data and data systems for understanding climate change.	<i>Not Quantified</i>	Unanimous Consent
WA-6	Cooperative development of information on climate change effects in each major river basin.	<i>Not Quantified</i>	Unanimous Consent
WA-7	Municipal water providers evaluate water conservation savings, best demand management practices, and the best uses of conserved water in their systems.	<i>Not Quantified</i>	Unanimous Consent
WA-8	Minimize effects of water-rights transfers on agricultural economies.	<i>Not Quantified</i>	Unanimous Consent
WA-9	Consider relationships between energy and water use.	<i>Not Quantified</i>	Unanimous Consent
WA-10	Information exchanges on effects of climate change on water resources.	<i>Not Quantified</i>	Unanimous Consent
WA-11	State government consider ways to reduce climate change effects on water-related recreation and tourism.	<i>Not Quantified</i>	Unanimous Consent
WA-12	State government consider ways to reduce climate change effects on the environment.	<i>Not Quantified</i>	Unanimous Consent
WA-13	Reduce use of groundwater for irrigation until recharges match discharges.	<i>Not Quantified</i>	Unanimous Consent
WA-14	Establish new Colorado Water Institute.	<i>Not Quantified</i>	Super Majority (1 objection)

Figure ES-3. CAP policy recommendations ranked by cumulative GHG reductions, 2007–2020



Note: Emission reductions for TLU-2 are included in the reductions for TLU-6, reductions for TLU-7 are included in the reductions for TLU-3, and reductions for ES-1 are included in the reductions for ES-2. For the purpose of counting the number of options for which emission reductions were quantified, each of the following are counted as one option: TLU-6 and TLU-2, TLU-3 and TLU-7, ES-2 and ES-1, and AFW-6a and AFW-6b.

Figure ES-4. CAP policy recommendations ranked by dollars per metric ton



Note: Negative values represent net cost savings and positive values represent net costs associated with the policy recommendation. Cost savings for TLU-2 are included in the cost savings for TLU-6, and costs for ES-1 are included with the costs for ES-2. For the purpose of counting the number of options for which costs or cost savings were quantified, each of the following are counted as one option: TLU-6 and TLU-2, ES-2 and ES-1, and AFW-6a and AFW-6b.