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To: Colorado Energy Supply (ES) Policy Working Group (PWG)
 From: CCS Project Team
 Re: Alternative Scenarios and Adjustments to analysis/policies
 Date: 8/14/2007

This memo summarizes the work CCS has done in response to the CAP requests on August 1, 2007, for additional definition and analysis on ES policy options. In addition, we have corrected some errors in our initial policy analyses which are described here. Finally, we present both gross costs and gross savings for each quantified policy option, per CAP request.

ES-2 Renewable Energy Costs

We have revised several assumptions regarding renewable energy costs and performed scenario analysis to evaluate the impact of uncertainty in wind integration costs on the cost of this policy option. Please see the companion memorandum on this topic.

The following table shows the revised costs and benefits of this policy under each wind integration cost scenario, as described in the companion memo. These differ from the previous results because of changes in several of the renewable energy cost assumptions.

	GHG Reductions (MMtCO ₂ e)			Gross Cost (Million \$)	Gross Benefits (Million \$)	Net Present Value 2007–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)
	2012	2020	Total 2007–2020				
ES-2 (low)	3	8	58	4,606	(4,125)	480	8
ES-2 (high)	0.4	1	7	5,180	(4,125)	1,055	18

ES-5 (Public Benefits Charge)

Upon review of existing PBC-type funds for renewable energy projects, we found that the goal in this policy (\$190 million per year for renewable energy projects) far outstrips even the most aggressive such programs in the nation. Further, under existing programs many projects initially slated for funding are eventually cancelled for myriad reasons, so the funding goals are often not met. Thus we conclude that we cannot credibly estimate the benefits of such a policy in Colorado without considerable additional research into

specific project potential in the state, and even so the level of funding specified would be excessive.

We propose to leave this policy option unquantified, except to note that it would represent a level of funding for renewable energy development that would be unmatched anywhere in the United States.

Adjustment for ES-6 (CHP and DG) Policy Option

We have made the following corrections and adjustments to our assumptions for ES-6 (CHP and DG):

- Most importantly, we corrected an error in the avoided cost calculation for non-CHP DG technologies (the previous model double-counted the avoided generation cost.)
- We changed the avoided electricity calculation from the customer level to the generation level (increases savings by 10% accounting for T&D line loss)
- We fixed an error in natural gas avoided cost (from \$7.16/mmBtu to \$7.42/mmBtu)
- We used the avoided fuel oil cost based on the simple average of industrial and commercial fuel oil price for CHP instead of fuel oil cost for electric generators.
- We extended the 10% federal solar investment tax credit for residential customers after the termination of the current 30% tax credit in 2007

The first summary results table below reflects these changes; the second summary table presents the original results for comparison. The NPV cost of the policy option is higher for the new estimates primarily because we fixed the double counting of avoided generation costs (as benefits).

New Summary Results for ES-6

	GHG Reductions (MMtCO ₂ e)			Gross Cost (Million \$)	Gross Benefits (Million \$)	Net Present Value 2007–2020 (Million \$)	Cost- Effective ness (\$/tCO ₂ e)
	2012	2020	Total 2007- 2020				
ES-6	0.4	1	7	680	(450)	230	32

Original Summary Results for ES-6

	GHG Reductions (MMtCO ₂ e)			Net Present Value 2007–2020 (Million \$)	Cost- Effectiveness (\$/tCO ₂ e)
	2012	2020	Total 2007- 2020		
ES-6	0.4	1	7	\$111	\$15