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Residential, Commercial, and Industrial (RCI) Sector GHG Reduction Policy Options

Prepared for Technical Working Group (TWG) Call #3, October 19, 2005, 8:30 to 10:30 AM

Potential Emission Reductions *	Potential Cost or Cost Savings *
High (H): At least 1 Million Metric Tons (MMT) carbon dioxide equivalent (CO_2e) per year by 2020 (~1% of current NM emissions)	**High (H)**: $50 per Metric Ton CO_2e ($MTCO_2e$) or above
Medium (M): From 0.1 to 1 MMT CO_2e per year by 2020	**Medium (M):** $5-50/$MTCO_2e$
Low (L): Less than 0.1 MMT CO_2e per year by 2020	**Low (L):** Less than $5/$MTCO_2e$
Uncertain (U): Not able to estimate at this time	**Cost Savings**: Options that save money, i.e., that have "negative costs."
	Uncertain (U): Not able to estimate at this time

***** "Potential" here connotes rough initial estimate based in part on experience in other states. Also, several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.

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.

**** Options marked with a double asterisk (**) indicate options that are at least partially "base case" policies, i.e., that have been or are likely to be implemented at some level in New Mexico. Please see http://www.nmclimatechange.us/ewebeditpro/items/O117F6957.pdf for an initial, non-comprehensive sampling of such policies as they relate to the policy option categories listed below.**

Option No.	GHG Reduction Policy Option	Priority for Analysis	Potential GHG Emissions Reductions	Potential Cost or Cost Savings	Ancillary Impacts, Feasibility Considerations	Notes
1.	**Energy Efficiency Programs, Funds, and Goals**					
1.1 (old 1.1 – 1.3)	Utility Demand Side Management (DSM) Programs, Energy Efficiency Funds (e.g. Public Benefit Funds) administered by State agency, utility, or 3rd party (e.g. Energy Trust), and/or Energy Efficiency Requirements (e.g. Utility Savings Goals or Energy Portfolio Standards) for electricity**		High	Cost Savings/ Low Cost	• Co-benefits include transmission/distribution system costs reduction. • Significant potential overlap with many other options.	
1.2 (old 1.1 – 1.3)	Utility Demand Side Management Programs, Energy Efficiency Funds, and/or Energy Efficiency Requirements, for natural gas, propane, fuel oil**		High	Cost Savings/ Low Cost	• Co-benefits include local air quality impacts. • Significant potential overlap with many other options.	
1.3 (old 1.4)	Market transformation and technology development programs		High	Cost Savings/ Low Cost		
2.	**Appliance Standards**					
2.1	Expansion of State-level Appliance Efficiency Standards		Low/High	Cost Savings/ Low Cost	• Feasibility enhanced by adopting regional standards	
2.2	Support for Federal-level Appliance Efficiency Standards		Low/High	Cost Savings/ Low Cost	• Potential overlap with previous option	

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3.	**Buildings**					
3.1	Improved Building Codes**		Medium/ High	Cost Savings/ Low Cost	• Potential to also yield water savings, comfort/air quality improvements.	
3.2	Promotion and Incentives for Improved Design and Construction (e.g. LEED—"Leadership in Energy-Efficient Design", daylighting, green buildings)**		Medium/ High	Cost Savings/ Low Cost	• Potential overlap with previous option [co-benefits as above] • May wish to emphasize attainment of a specific level of LEED standards., emphasize the energy-related aspects of LEED	
3.3	Contractor and Builder Education (e.g.: Proper sizing of HVAC, duct sealing)**		Medium/ High	Cost Savings/ Low Cost	• Potential to also yield water savings, comfort/air quality improvements. • Potential overlap with previous options.	
3.4	Training and Enforcement of Building Codes**		Medium	Cost Savings/ Low Cost	[As above]	
3.5	Building Commissioning and Recommissioning, including Energy Tracking and Benchmarking**		Medium	Cost Savings/ Low Cost	[As above]	
3.6	Energy Management Training/ Training of Building Operators**		Medium	Cost Savings/ Low Cost	[As above]	

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3.	**Buildings (continued)**					
3.7	Increased use of Blended Cement (substituting fly ash or other pozzolans for clinker reduces CO_2 emissions)		Low/ Medium	Cost Savings/ Low Cost	• May provide modest avoided waste disposal co-benefit, depending on standard practice	
3.8	Reduction of Emissions from Diesel Engines Used in New Construction Developments, and Reduction of Construction Energy Use		Low	Low Cost?		
3.9	Tools and Options for Use by Design and Engineering Professionals to Select and Promote Low Embodied-emissions Materials		Uncertain	Uncertain	• Extension of existing widely-used tools such as “MASTERSPEC”/ ”SPECWARE” • Location of emissions benefits (in-state or out-of-state) may vary	
4.	**Education and Outreach**					
4.1	Consumer Education programs		Uncertain	Cost Savings/ Low Cost	• Potential contribution difficult to estimate	
4.2	Introduce in Primary/Secondary School Curriculum		Uncertain	Cost Savings/ Low Cost	[As above]	
4.3	Increased Emphasis on Energy and Environmental Consideration in Higher Education and Training for Professionals		Uncertain	Cost Savings/ Low Cost	[As above]	

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5.	**Pricing and Purchasing**					
5.1	Green Power Purchasing**		Uncertain	Medium/ High Cost	• Interaction with RPS option.	
5.2	Bulk Purchasing Programs for Energy Efficiency or other Equipment (Public or Private sector)		Low/ Medium	Cost Savings/ Low Cost	• May interact with utility programs.	
5.3	Net-metering policies**		Low/ Medium	Cost Savings/ Low Cost		
5.4	Rate Design (Including Time of Use Rates, Increasing Block Rates, and Seasonal Use Rates)		Low	Cost Savings/ Low Cost	• Significant utility system co-benefits	

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6.	**Technology Specific Policies**					
6.1	Incentives for Renewable Energy Applications (Solar roofs, water heaters, etc.)**		High	Medium/ High Cost	• Programs could help to lower capital and installation costs	
6.2	Clean Combined Heat and Power (CHP) (could also include distributed generation without heat use, combined heat, cooling, and power generation, and generation from existing waste heat sources).		High	Cost Savings – Medium Cost	• Cost dependent on price of natural gas • Interconnection an issue • Utility system benefits • [Note that generation from waste heat may require different policies than CHP]	
6.3	Promotion and Tax or Other Incentives (e.g. ENERGYSTAR, credits for solar hot water)**		Medium/ High	Cost Savings/ Low Cost	• Interaction with appliance standards, utility programs.	
6.4	Appliance Recycling/Pick-Up Programs		Low	Cost Savings/ Low Cost	• Long-term impact uncertain	
6.5	Energy-efficient Design and Landscaping (including white roofs, rooftop gardens, shade tree programs)		Medium/ High	Cost Savings/ Low Cost	• Results likely to vary substantially with design	
6.6	Focus on Specific End-uses/technologies: window AC units, evaporative versus direct (or “DX”) cooling, lighting, water heating, plug loads, networked PC management, power supplies, motors, pumps, boilers, etc. Consumer Products Programs: may include incentives, retailer training, marketing and promotion, education, etc.**		(Individually Low to High)	Cost Savings/ Low	• Interaction with appliance standards, utility programs.	

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7.	**Non-Energy Emissions (HFCs, PFCs, SF_6, CO_2 process Emissions**					
7.1	Participation in Voluntary Industry-Government Partnerships**		Uncertain	Cost Savings/ Low Cost		
7.2	Process Changes/ Optimization		Uncertain	Uncertain	• Impact, cost likely highly process-specific.	
7.3	Leak Reduction /Capture, Recovery and Recycling of Process Gases		Medium	Uncertain		
7.4	Use of Alternative Gases (other HFCs, hydrocarbon coolants, etc.)		Medium/ High	Low/ Medium Cost		
7.5	Cement Industry: Use of Alternative Fuels		Uncertain	Low/ Medium Cost		

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8.	**GHG Emissions-Specific Goals and Policies**					
8.1	Support for Switching to Less Carbon-Intensive Fuels (coal and oil to natural gas or biomass, natural gas to biomass, for RCI sectors—stoves and boilers)		Medium/ High	Cost Savings - Medium Cost	• Cost dependent on relative fuel prices • Potential local and state economic co-benefits from using local biomass fuel supplies • Biomass fuel supply/use may interact with land use, forestry, local air quality issues.	
8.2	Industry-Specific Emissions Cap and Trade Programs		Medium/ High	Low/ Medium Cost	• Highly dependent on specification of trading systems	
8.3	Voluntary emissions targets		Uncertain	Uncertain		
8.4	Negotiated Emissions or Energy Savings Agreements		Uncertain	Uncertain		

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9.	**Other**					
9.1	Government Agency Requirements and Goals (including procurement)**		Uncertain	Cost Savings/ Low Cost	• Potential overlap with other options	
9.2	Focus on Specific Market Segments: Existing Homes (weatherization), New Construction, Apartments, Low Income, etc.**		Medium/ High	Cost Savings/ Low Cost	• Potential overlap with other options	
9.3	Reinvestment Fund		Uncertain	Cost Savings/ Low Cost	• Potential overlap with other options	
9.4	Municipal Energy Management		Uncertain	Uncertain	• Potential overlap with other options	
9.5	Focus on Small and Medium Enterprises (SMEs)**		Uncertain	Uncertain	• Potential overlap with other options	
9.6	Industrial Ecology/ By-product synergy		Uncertain	Uncertain		
9.7	Facilitate Activities of ESCOs in Public Sector Energy Efficiency Projects**		Uncertain	Uncertain	• Potential overlap with other options	

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10.	**Solid Waste and Wastewater Management**					
10.1	Solid Waste Source Reduction		Medium/ High	Uncertain		
10.2	Solid Waste Recycling		Medium/ High	Uncertain	• Materials recovery, reduction of energy requirements for raw materials production	
10.3	Separation and Composting of Organic Materials in Solid Wastes		Uncertain	Uncertain	• Co-production of soil amendments	
10.4	Capture/Use in Buildings or Industry of Methane from Landfills		Uncertain	Uncertain	• Fossil fuel displacement a co-benefit • Gas processing may be required for some end-uses	
10.5	Capture for Use in Buildings or Industry of Methane from Wastewater Treatment		Uncertain	Uncertain	• Fossil fuel displacement a co-benefit • Gas processing required for some end-uses	
10.6	Capture for Use in Electricity Generation of Methane from Landfills or Wastewater Treatment		Uncertain	Uncertain	• Fossil fuel displacement a co-benefit	
10.7	Capture and Flaring of Unused Gas from Small Landfills or Wastewater Treatment		Uncertain	Low Cost		
10.8	Combustion of Solid Wastes to Generate Electricity (Waste-to-Energy)		Uncertain	Uncertain	• Fossil fuel displacement a co-benefit	