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Memo

To: Minnesota Climate Change Advisory Group

From: The Center for Climate Strategies

CC: Ed Garvey, Minnesota Department of Commerce
David Thornton, Minnesota Pollution Control Agency
Minnesota Technical Work Group Members

Subject: Preparation for the Third Meeting of the Minnesota Climate Change Advisory Group Meeting

Date: August 2, 2007

At our third meeting of the Minnesota Climate Change Advisory Group (MCCAG) on Thursday, August 2, 2007, we will focus on review and approval of the draft "priority for analysis" policy options and updates to the draft Minnesota greenhouse gas (GHG) emissions inventory and forecast. Based on this discussion and any adjustments made by the MCCAG, the Technical Work Groups (TWGs) will begin work on straw proposals for future development and quantification of draft policy options.

As preparation for our meeting, please review the attached lists of TWG suggested draft policy option "priorities for analysis" and other background documents posted to the project website at: www.mnclimatechange.us.

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

- Identification of a full range of potential Minnesota options for mitigation of GHG emissions, including over 300 possible state actions.
- TWG identification, by balloting, of 55 initial priorities for analysis of draft policy options.
- Completion of the initial statewide inventory and forecast of GHG emissions and start of the review process.

The next stages of the MCCAG process will include completion of the following milestones:

- Approval of a full range of initial priorities for analysis of draft policy options at our third meeting.

- Formulation of "straw proposals" for the design of these initial draft policy options for consideration by the MCCAG at its fourth meeting.
- Completion of the first round of economic analysis of draft policy options by CCS, and identification of early consensus recommendations at our fifth meeting.
- Review and revision of policy option design, analysis, and draft options as needed during TWG calls and meetings.
- Final approval of remaining MCCAG policy option recommendations at our sixth meeting.
- Final approval of the statewide inventory and forecast of GHG emissions by the final meeting.

Summary of MCCAG Progress and Next Steps:

Status of Draft Policy Options	
Original Number of Potential Options Presented to the MCCAG from the CCS Catalog of State Actions	251
Updated Number of Potential Options on the CCS Catalog of States Actions, Including MCCAG Additions	300+
Current Number of Draft Potential Priority Policy Options for Analysis	55
• Residential, Commercial, and Industrial	11
• Energy Supply	14
• Transportation and Land Use	11
• Agriculture, Forestry and Waste	8
• Cross Cutting Issues	11
Next Steps	
Approve Straw Proposals for Draft Policy Option Design	MCCAG Meeting #4
Present First Round of Analysis of Draft Policy Options and Identify Early Consensus Recommendations	MCCAG Meeting #5
Approve Final MCCAG Policy Option Recommendations	MCCAG Meeting #6

Table 1.
Residential, Commercial, and Industrial Technical Work Group
Summary List of Recommended Priority Policy Options for Analysis

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
RCI-1	Maximize savings from utility Conservation Improvement Program (CIP)	1.1 (Utility Demand-Side Management (DSM) Programs for Electricity)
RCI -2	Improved uniform state-wide building codes for: (a) improved energy efficiency; (b) reduced greenhouse gas emissions; and (c) structural soundness	2.1 (Improved Building Codes for Energy Efficiency)
RCI -3	Green Building guidelines and standards: • Promote, incentivize or adopt green building guidelines and standards for all buildings • Require state and local buildings (including schools) to meet guidelines and standards	2.4 (Increased Use of Blended Cement (substituting fly ash or other pozzolans for clinker))
RCI -4	Incentives & resources to promote Combined Heat and Power (a.k.a. cogen)	6.2 (Incentives and Resources to Promote Combined Heat and Power (a.ka. Cogen))
RCI -5	Program to reduce emissions of non-fuel, high-global-warming-potential GHGs: • Promotion & funding for Process Optimization • Use of lower-impact alternatives for coolants, refrigerants, aerosols, solvents and insulation, etc. • Rulemaking by MPCA would phase out high-global-warming-potential gases	7.3 (Promotion and Funding for Process Changes/ Optimization)
RCI -6	Develop non-utility strategies and incentives to encourage energy efficiency and reduce greenhouse gas emissions.	1.6 (Reduced Cost or Free Residential Energy Audits)
RCI -7	Conservation Improvement-type Program for propane and fuel oil efficiency	1.9 (Saving Energy, Savings Sales Tax)
RCI -8	Energy performance disclosure: • By sellers for buildings at time of sale • By utilities upon request of buyer or lessee • By utilities in all energy billing	4.3 (Truth in Advertising Campaign)

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
RCI -9	Promote technology-specific applications that reduce GHG emissions: • Renewable, on-site distributed generation installations to achieve X% in public buildings and X% in private buildings • Efficient transformers on the customer side of the meter • Passive solar heating • White roofs, rooftop gardens, and landscaping (including shade tree programs) • Specific consumer products (e.g., window AC units, lighting, water heating, plug loads, networked PC management, power supplies, motors, pumps, boilers, etc.) • Geothermal heat pumps that are at least 3.2 COP and 14.1 EER	6.3 (Efficient Transformers on the Customer Side of the Meter)
RCI -10	Support strong federal appliance standards and require high state standards for appliances not preempted by federal standards.	3.1 (Expansion of State-Level Appliance Efficiency Standards)
RCI -11	Consumer education and professional training programs	4.1 (Consumer Education Programs)

Table 2.
Energy Supply Technical Work Group
Summary List of Recommended Priority Policy Options for Analysis

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
ES-X[1]	GHG Cap-and-Trade	1.1 (GHG cap and trade)
ES-1	Generation Performance Standards or Mitigation Requirements	1.3 (Generation Performance Standards or Mitigation Requirements)
ES-2	Improve the GHG Profile of Biofuels and Fossil Fuels (e.g., Low Carbon Fuel Standard, biofuel production)	4.7 (Improve the GHG Profile of Biofuels and Fossil Fuels (e.g., Low Carbon Fuel Standard, biofuel production))
ES-3	Efficiency Improvements, Repowering and other Upgrades to Existing Plants	3.3 (Efficiency Improvements, Repowering and other Upgrades to Existing Plants)
ES-4	Transmission System Upgrading, incl. reducing transmission and distribution line loss.	6.1 (Transmission System Upgrading)
ES-5	Renewable and/or Environmental Portfolio Standard	2.1 (Renewable and/or Environmental Portfolio Standard)
ES-6	Nuclear Power Support and Incentives	3.2 (Nuclear Power Support and Incentives)
ES-7	Advanced fossil fuel technology incentives, support, or requirements (IGCC, CCS, etc.)	3.1 (Advanced fossil fuel technology incentives, support, or requirements (IGCC, CCS, etc.))
ES-8	CCSR enabling policies (administration, regulation, liability, incentives) and incentives	5.1 (CCSR enabling policies (administration, regulation, liability, incentives) and incentives)
ES-9	Large-scale, supply-oriented Combined Heat and Power (CHP) & Geothermal Incentives and/or Barrier Removal	2.5 (Combined Heat and Power (CHP) & Geothermal Incentives and/or Barrier Removal)
ES-10	Voluntary GHG targets	1.4 (Voluntary GHG targets)
ES-11	Carbon (GHG) tax	1.2 (Carbon (GHG) tax)

[1] This option (report on cap-and-trade) is required by legislative statute.

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
ES-12	Distributed Renewable Energy Incentives and/or Barrier Removal	2.3 (Distributed Renewable Energy Incentives and/or Barrier Removal)
ES-13	Technology-based approaches, including research & development, fuel cells, energy storage, distributed renewable technologies, etc	1.5 (Technology R&D)

Table 3.
Transportation and Land Use Technical Work Group
Summary List of Recommended Priority Policy Options for Analysis

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
TLU-1	Improved Planning and Development Strategies	2.1.1 (Infill, Brownfield Re-development) 2.1.2 (Transit-Oriented Development) 2.1.3 (Smart Growth Planning, Modeling, Tools) 2.1.4 (Targeted Open Space Protection) 2.1.5 (Priority Areas designated planned growth areas (to receive priority in all forms of state funding programs))
TLU-2	Improved Infrastructure	2.2.3 (Transit Marketing and Promotion) 2.2.4 (Expand Bike and Pedestrian Infrastructure) 2.2.5 (Expand Transit Infrastructure (rail, bus, BRT) (Including Increase funding to implement Metropolitan Council's Transit Plan by 2020)) 2.2.6 (HOV Lanes) 2.2.14 (Expand Transit Use (through provision of tax benefits to non-profits)) 2.2.15 (Transportation Demand Management)
TLU-3	Biofuels	2.4.3 (Biofuels Expansion)
TLU-4	Infrastructure Management	1.2.3 (Transportation System Management)
TLU-5	Climate-Friendly Transportation Fees	1.3.3 (CO2-based registration fees) 2.3.2 (VMT Tax) 2.3.3 (Pay As You Drive Insurance) 2.3.4 (Increased Fuel Tax (w/ targeted use of revenue towards travel alternatives))
TLU-6	Adopt CA Clean Car Standards	1.1.1 (Tailpipe GHG Emission Standards)
TLU-7	"Fix-it-First" (Repair before new infrastructure)	2.2.7 ("Fix It First")
TLU-8	Update Road Standards	2.2.12 (Road Standards)

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
TLU-9	Commuter Choice/Parking Cash Out/required employer TDM plans	2.3.1 (Commuter Choice Programs/Parking Cash Out)
TLU-10	Congestion Pricing (or tolls) (w/ targeted use of revenue towards travel alternatives)	2.3.6 (Congestion Pricing)
TLU-11	Truck Stop Electrification	3.2.6 (Truck Stop Electrification)

Table 4.
Agriculture, Forestry, and Waste Management Technical Work Group
Summary List of Recommended Priority Policy Options for Analysis

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
AFW-1	Agricultural Crop Management	3.1 (Soil Carbon Management) 3.2 (Nutrient Management) 5.2 (Promotion of Farming Practices that Achieve GHG Benefits)
AFW-2	Forestry Management Programs to Enhance GHG Benefits	7.2 (Urban Forestry) 7.4 (Forest Management for Carbon Sequestration) 7.3 (Afforestation and/or Restoration of Nonforested Lands) 7.5 (Mitigation of Forest Carbon Sequestration Loss and Emissions Due to Wildfire) 7.6 (Mitigation of Forest Loss Due to Insects/Disease)
AFW-3	Integrated Waste Management	9.1 (Advanced Recycling) 9.6 (Enhanced Management of Organic Waste) 9.3 (Source Reduction Programs)
AFW-4	Expanded Use of Biomass Feedstocks for Electricity, Heat, or Steam Production	1.1 (Expanded Use of Biomass Feedstocks for Electricity, Heat, or Steam Production) 6.1 (Expanded Use of Forest Biomass Feedstocks for Electricity, Heat, and Steam Production) 6.4 (Improved Commercialization of Biomass Gasification and Combined Cycle)
AFW-5	Land Use Management Approaches for Protection and Enrichment of Soil Carbon	4.1 (Land Use Management that Promotes Perennial Herbaceous Cover) 12.1 (Conservation of Peatlands)
AFW-6	Forest Protection – Reduced Clearing and Conversion to Nonforest Cover	7.1 (Forest Protection – Reduced Clearing and Conversion to Nonforest Cover)

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
AFW-7	In-State Liquid Biofuels Production	1.2 (In-State Liquid Biofuels Production) 6.2 (In-State Liquid Biofuels Production (Forestry))
AFW-8	End of Use Waste Management Practices	10.3 (Landfill Methane Energy Programs) 10.2 (Methane and Biogas Energy Programs) 9.2 (Promotion of Bioreactor Technology (or other Advanced MSW Management Practices) 9.7 (Promotion of New or Existing Technologies for Waste Energy Conversion)

Table 5.
Cross-Cutting Issues Technical Work Group
Summary List of Recommended Priority Policy Options for Analysis

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
CC-1	GHG Inventories, Forecasting, Reporting, and Registry	CC-1 (Inventories and Forecasting) CC-2 (GHG Reporting); CC-3 (GHG Registry)
CC-2	Statewide GHG Reduction Goals and Targets	CC-4 (Statewide GHG Reduction Goals and Targets)
CC-3	State and Local Government GHG Emissions (Lead-by-Example)	CC-5 (State and Local Government GHG Emissions (Lead-by-Example)) CC-6 (Comprehensive Local Government Climate Action Plans (Counties, Cities, etc.))
CC-4	Public Education and Outreach	CC-7 (Public Education and Outreach)
CC-5	Tax and Cap Policies	CC-8 (Tax and Cap Policies) CC-16 (Investigate Greater Coordination of Environmental Attributes Trading Associated with Electric Power Generation)
CC-6	Adaptation and Vulnerability	CC-10 (Adaptation and Vulnerability)
CC-7	Participate in Regional and Multi-State GHG Reduction Efforts	CC-11 (Participate in Regional and Multi-State GHG Reduction Efforts)
CC-8	Encourage the Creation of a Business-Oriented Organization to Share Information and Strategies, Recognize successes, and Support Aggressive GHG Reduction Goals	CC-12 (Encourage the Creation of a Business-Oriented Organization to Share Information and Strategies, Recognize successes, and Support Aggressive GHG Reduction Goals)
CC-9	Dedicate Greater Public Investment to Climate Data and Analysis	CC-13 (Dedicate Greater Public Investment to Climate Data and Analysis) CC-14 (Dedicate Greater Public Investment to Climate-Related Research, Development, and Distribution (RD&D))
CC-10	Facilitate the Development of an Effective Carbon Credit System for MN	CC-15 (Facilitate the Development of Terrestrial Sequestration Offsets Market(s))
CC-11	Create a Market Advisory Group	Added by TWG after MCCAG Meeting #2

Sample Draft Policy Option Template
AFW-x Policies to Promote Ethanol Production

Policy Description

Trees, crops and other plants convert atmospheric carbon to carbohydrate or fiber stocks that can be converted to liquid fuels, such as ethanol. The use of these renewable, biological fuels can offset fossil fuel use and reduce associated net carbon dioxide emissions. Production incentives for the conversion of crops, forest sources, animal waste and other sources to ethanol through existing or new technologies can increase the level of ethanol use in future markets.

Policy Design

Goals: Several projects are being proposed in Vermont that would result in the production of x million gallons of ethanol annually in Vermont by 200x. Production incentives could increase this amount by x% beyond expected levels in 20xx, and x% by 20xx.

- **Timing:** Startup in 20xx and ramp up to higher levels in 20xx and 20xx, consistent with goals.
- **Parties Involved:** Suppliers of feedstocks, ethanol producers, and distributors. Associated agencies would include: xxx...
- **Other:** As needed, identify incentives that encourage the growing and supply of feedstocks and the utilization of ethanol in transportation markets across the state.

Implementation Mechanisms

TBD

Related Policies/Programs in Place

TBD

Types(s) of GHG Reductions

Net reduction in CO2 emissions.

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

- **Data Sources:** TBD
- **Quantification Methods:** Full life-cycle analysis with supply/demand equilibrium adjustments.
- **Key Assumptions:** TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD