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**Residential, Commercial, and Industrial (RCI)
Technical Work Group**

Summary List of Pending Priority Policy Options for Analysis

	Policy Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2009–2025 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Level of Support
		2015	2025	Total 2009–2025			
RCI-1	Improved Building Codes	<i>Not Yet Quantified</i>					Pending
RCI-2	Utility and Non-Utility DSM for Electricity and Natural Gas	<i>Not Yet Quantified</i>					Pending
RCI-3	Reduced Energy Use in State-Owned Buildings: Government “Lead by Example”	<i>Not Yet Quantified</i>					Pending
RCI-4	Promotion and Incentives for Improved Building Design and Construction	<i>Not Yet Quantified</i>					Pending
RCI-5	Consumer Education for Consumers and Industry Trades, Professions	<i>Not Yet Quantified</i>					Pending
RCI-6	Incentives and Funds To Promote Energy Efficiency	<i>Not Yet Quantified</i>					Pending
RCI-7	Green Power Purchasing for Consumers	<i>Not Yet Quantified</i>					Pending
RCI-8	Nonresidential Energy Efficiency	<i>Not Yet Quantified</i>					Pending
RCI-9	Support for Energy-Efficient Communities, Including Smart Growth	<i>Not Yet Quantified</i>					Pending
RCI-10	Energy-Savings Sales Tax	<i>Not Yet Quantified</i>					Pending

Note: The numbering used to denote the above pending priority policy options is for reference purposes only; it does not reflect prioritization among these important draft policy options.

**RCI Reference Table (AR GCGW meeting #5)
Priority Policy Options for Analysis and Corresponding Catalog Options**

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
High-Priority (Tier I)		
RCI-1	Improved Building Codes	2.1 (Improved Building Codes for energy efficiency) 2.2 (Training of building codes and other officials in energy code enforcement)
RCI -2	Utility and Non-utility DSM for Electricity and Natural Gas	1.1 (Utility DSM for electricity) 1.2 (Utility DSM for natural gas, propane and fuel oil) 1.3: Non-utility DSM programs for electricity
RCI -3	Reduced Energy Use in State-owned Buildings: Government "Lead by Example"	1.10 (Reduce energy use in state-owned buildings) 2.3 (Improved design and construction, government "lead by example") 9.3 (Carbon neutral requirement for state buildings)
RCI -4	Promotion and Incentives for Improved Building Design and Construction	2.6 (Promotion and incentives for Improved design and construction (e.g., LEED) in the private sector) 2.7 (Feebate program to encourage energy efficiency in building design) 2.8 (Incentives for retrofit of existing residential buildings)
RCI -5	Consumer Education for Consumers and Industry Trades, Professions	4.1 (Consumer Education Programs) 4.2 (Energy Efficiency School Curriculum) 3.2 (Support for Federal-level Appliance Efficiency Standards) 2.9 (Training and Education for Builders and Contractors) 2.10 (Energy Management Training/Training of Building Operators) 8.5 (Provide tools and information for residents, businesses, and communities to perform GHG inventories)

Proposed Option #	Proposed Option Name	# From Catalog of State Actions
RCI -6	Incentives to Promote Energy-efficiency	6.1 (Incentives to Promote Implementation of Renewable Energy Systems) 6.4 (Incentives for passive solar heating) 6.5 (White Roofs, Rooftop Gardens, and Landscaping) 6.6 (Focus on specific end-uses/technologies) 6.7 (Passive solar heating design) 6.8 (Solar hot water heating)
RCI -7	Green Power Purchasing for Consumers	5.1 (Green Power Purchasing for Consumers)
RCI -8	Non-Residential Energy Efficiency	6.2 (Incentives and resources to promote combined heat and power) 6.3 (Efficient transformers on customer-side of meter)
RCI -9	Energy-efficiency Funds	1.4 (Energy-efficiency Funds)
RCI -10	Support for Energy-efficient communities, including "Smart Growth"	2.5 (Support for Energy-efficient communities, including "Smart Growth")
RCI -11	Energy-savings Sales Tax	1.9 (Energy-savings Sales Tax)

RCI-1. Improved Building Codes

Policy Description

Building energy codes specify minimum energy efficiency requirements for new buildings or for existing buildings undergoing a major renovation. Given the long lifetime of most buildings, amending state and/or local building codes to include minimum energy efficiency requirements and periodically updating energy efficiency codes could provide long-term GHG savings. Almost half of all U.S. GHG emissions annually are associated with the operation of residential, commercial, and industrial buildings.

Policy Design

Goals: Strengthen building codes to achieve [x] percent energy efficiency (reduce energy consumption) for residential, commercial, and industrial buildings beginning in [year] and growing by [x] % per year.

Timing: New building codes become effective initially in [year], and final goal is achieved by [year]. Identify start date and duration for each sector, if different.

Implementing Parties: Home owners, building owners, builders, contractors, developers (new construction and existing buildings).

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]

RCI-2. Utility and Non-Utility DSM for Electricity and Natural Gas

Policy Description

Demand-side management (DSM) is a policy approach that requires actions that influence both the quantity and patterns of energy consumed by end users. This option focuses on increasing investment in electricity and natural gas DSM programs. The goals may be accomplished through programs run by utilities or others, energy efficiency funds, and/or energy efficiency goals. These strategies are typically termed DSM activities, and may be designed to work in tandem with other strategies that can also encourage efficiency gains.

Policy Design

Goals: Implement energy efficiency programs to reduce electricity use, adjusted for growth, by [x] % per year by [year] and by [x] % per year by [year]. Implement energy efficiency programs to reduce natural gas use, adjusted for growth, by [x] % per year by [year] and sustain annual savings through [year].

Timing: Legislative and utility commission action in [year], with an initial target of [x] % in [year], gradually increasing to [x] % in [year], and then to [x] % in [year] or sustained through [year].

Implementing Parties: All electric utilities (public and private), regulators, and customers (all sectors). All natural gas utilities (public and private) and customers (all sectors), industrial facilities, large commercial facilities, and regulators.

Other:

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]

RCI-3. Reduced Energy Use in State-Owned Buildings: Government “Lead by Example”

Policy Description

Government-led, or “lead by example,” initiatives help state and local governments achieve substantial energy cost savings while promoting the adoption of clean energy technologies for significant GHG emission reductions in new and existing state and local government buildings. The proposed policy provides energy efficiency targets that are much higher than code standards. This option sets energy-efficiency goals for the existing government building stock, as well as for new construction and major renovations.

Policy Design

Goals: Set a state goal that, by [year], a minimum of [x] % of electricity consumed by state and local facilities and schools should come from in-state renewable resources. Implement energy efficiency programs to reduce energy use, adjusted for growth, by [x] % per year by [year] and by [x] % per year by [year].

Timing: Beginning in [year].

Implementing Parties: State government agencies, local governments, schools and universities.

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]

RCI-4. Promotion and Incentives for Improved Building Design and Construction

Policy Description

This policy provides incentives and targets to induce the owners and developers of new and existing buildings to improve the efficiency with which energy and other resources are used in those buildings, along with provisions for raising targets periodically and providing resources to building industry professionals to help achieve the desired building performance. This policy can include elements to encourage the improvement and review of energy use goals over time, and to encourage flexibility in contracting arrangements to encourage integrated energy- and resource-efficient design and construction.

Policy Design

Goals: Consider going beyond existing certification programs, providing energy consumption performance (energy intensity) that is [x] % of the regional average for each building type, or define goals as the higher levels of LEED (Gold/Platinum), higher levels of Built Green (4-Star, 5-Star), or similarly-stringent third-party-verified green building certifications in other systems of standards.

Timing: Compliance will begin on [date].

Implementing Parties: All builders, building material suppliers, recycled building material sellers, and home improvement stores. The aforementioned should be considered for both private and public construction projects.

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]

RCI-5. Consumer Education for Consumers and Industry Trades, Professions

Policy Description

The ultimate effectiveness of emissions reduction activities in many cases depends on providing information and education to consumers regarding the energy and GHG emissions implications of consumer choices. Public education and outreach is vital to fostering a broad awareness of climate change issues and effects (including co-benefits, such as clean air and public health) among the state's citizens. Such awareness is necessary to engage citizens in actions to reduce GHG emissions in their personal and professional lives. This option also addresses education and outreach programs for building professionals to encourage incorporation of energy-efficiency and GHG emission reduction considerations, such as programs to train builders and contractors on proper heating and air conditioning sizing and installation, mandating that the State Board of Licensing for building professionals cover knowledge of the improved building codes and building energy performance requirements reflected in various policy options in licensing exams, and implementation of code training and technical assistance for builders and architects.

Policy Design

Goals: Consumer and technical/professional education courses and outreach programs to be developed for GHG emissions reduction.

Timing: Education/training option in place by [year]. Outreach programs to begin by [date].

Implementing Parties: Consumers, retailers, manufacturers, technicians and professionals in building and related trades, code enforcement agencies, K-12 public schools, community colleges, universities.

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]

RCI-6. Incentives and Funds To Promote Energy Efficiency

Policy Description

This option refers to financial mechanisms for energy efficiency that could increase program participation and investment by providing incentives to a variety of customer classes to improve energy performance of buildings, equipment and residences. These incentives could be targeted at residential customers, small businesses and low-income consumers as well as to other customer classes, including larger businesses and the industrial sector. A public benefits charge (sometimes call systems benefits charge) is a fee attributed to utility customers based on their usage of energy in a given time period. With deregulation in many states, the utility commissions often lost the ability to require efficiency programs of the electric utilities. The result in many states was the development of the public benefits charge, which is a non-bypassable charge on electric bills. The funds collected are then provided to a third party to provide energy efficiency programming.

Policy Design

Goals: Offer [x] number of green loans for energy efficiency improvements to low income residents. Offer [x] number of incentives to investor-owned utilities, [x] number to municipal utilities, and [x] number to electric cooperatives. Expand energy audit programs by [x] % for all sectors.

Timing: [x] number of green loans given by [date]. Incentives offered and implemented by [year]. [x] % of energy audit programs expanded by [date].

Implementing Parties: Commercial and industrial energy users in the private and public sectors (including those responsible for mixed-use projects), public agencies, utilities, building design and construction professionals, and lenders.

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]

RCI-7. Green Power Purchasing for Consumers

Policy Description

Green power purchasing refers to a variety of consumer-driven strategies to increase the production and delivery of low-GHG power sources, beyond levels achieved through Renewable Portfolio Standards and other mandatory programs. These programs provide consumers with information about alternative green sources that can be then be selected by the consumer rather than the traditional, more carbon-intensive source.

Policy Design

Goals: Electric facilities purchase green power to cover [x] % of their power needs by [year]. Implement programs to provide consumers the option to purchase green power.

Timing: Consumer purchasing participation of green power by [year].

Implementing Parties: State facilities, electric utilities, renewable energy producers, electricity consumers, and buyers of energy-using appliances and equipment.

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]

RCI-8. Nonresidential Energy Efficiency

Policy Description

Targeted financial incentives and instruments, through two primary vehicles 1) business energy tax credits and 2) private/public efficiency funds, can be used as means of encouraging energy efficiency improvements that will affect the development, design, and building of both new and existing energy-using systems in the non-residential sectors. This option is designed to offer financial mechanisms to support and encourage energy-efficiency improvements in both entire buildings and in stand-alone energy systems, and in both existing and new construction. As such, it serves as a key means of implementation of programs to improve energy efficiency in new and existing buildings.

Combined heat and power (CHP) refers to any system that simultaneously or sequentially generates electric energy and utilizes the thermal energy that is normally wasted. The recovered thermal energy can be used for industrial process steam, space heating, hot water, air conditioning, water cooling, product drying, or nearly any other thermal energy need in the commercial, and industrial sector. The end result is significantly increased efficiency over generating electric and thermal energy separately. In fact, many CHP systems are capable of an overall efficiency of over 80%—double that of conventional systems. Another significant advantage is the reduced transmission and distribution (T&D) losses associated with centralized power generation.

Industrial and commercial facilities served by 480-volt three-phase power from a utility typically use dry-type transformers to distribute power internally at lower voltages such as for lighting and plug power. Efficient transformers are able to produce lower losses throughout the period of usage. When combined with incentives, the electricity saved by qualified such energy efficient transformers typically has a 3-year payback period.

Policy Design

Goals: Offer [x] number of incentives to investor-owned utilities, [x] number to municipal utilities, and [x] number to electric cooperatives. Installation of [x] % of the additional CHP and waste heat recovery technical potential by [year].

Timing: Incentives offered and implemented by [year]. Beginning with [x] MW installed in [year], increasing gradually to achieve the [x] % goal by [year].

Implementing Parties: Commercial, industrial, and institutional buildings; investor-owned utilities, municipal utilities, electric cooperatives, utility customers.

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]

RCI-9. Support for Energy-Efficient Communities, Including Smart Growth

Policy Description

Improved community planning aims to create communities that are, among other attributes, livable, designed for reduced use of energy both within homes and businesses and in the transport sector, and have a reduced environmental impact relative to typical developments. Variants on the smart growth concept exist, but many call for clustering living units with easy access (often walking distance) to shops, schools, and entertainment and recreational facilities, incorporating elements of energy efficient design and renewable energy in buildings, sharing energy facilities between buildings (for example, district heating systems), and preserving open spaces.

Policy Design

Goals: establish renewable energy supply targets of [x]% of projected need, energy efficiency targets of [x]% above current standards and, district heating provisions that will save [x]% of supply from the grid. [as approved by the TWG]

Timing: implementation year of [x, y, z] for each goal [as approved by the TWG]

Implementing Parties: TBD – [as approved by the TWG]

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]

RCI-10. Energy-Savings Sales Tax

Policy Description

This option refers to a sales tax exemption for energy-efficient products. Products included could be compact fluorescent light bulbs, highly efficient electric heat pump water heaters, natural gas water heaters, and natural gas furnaces.

Establishing a market signal that rewards lower-carbon purchase decision-making provides consumers with an incentive to improve their energy efficiency and reduce their adverse impact on climate.

Policy Design

Goals: Determine products which should be included in the implementation of a sales tax exemption; implement the sales tax exemption.

Timing: Implement sales tax exemption by [date].

Implementing Parties: Retail business and consumers.

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as approved by the TWG]

Estimated GHG Reductions and Costs or Cost Savings

TBD – [as approved by the TWG]

Data Sources: [TBD, as approved by the TWG]

Quantification Methods: [e.g., Full life cycle analysis with supply/demand equilibrium adjustments on TWG approval]

Key Assumptions: [TBD, as approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until GCGW moves to final agreement at meeting #7 or #8]

Level of Group Support

TBD – [blank until GCGW meeting #7 or #8]

Barriers to Consensus

TBD – [blank until final vote by the GCGW]