

**INTERIM REPORT FOR DISCUSSION ONLY – DO NOT COPY OR CITE**

**New Hampshire Climate Change Policy Task Force  
Working Group Interim Report**

**Summary Descriptions of Actions under Consideration**

**Prepared by NHDES  
April 21, 2008**

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**New Hampshire Climate Change Policy Task Force**  
**Adaptation (ADP)**  
**Working Group Interim Report**

The following document contains the *proposed final list of goals and actions* that will be developed and submitted by the **Adaptation Working Group** for consideration by the Climate Change Policy Task Force. The list includes summaries for each goal and action, for which the working group anticipates submitting program descriptions and evaluations to the Task Force.

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**Goal and Action Descriptions:**

**ADP Goal 1 - Impact Information Development and Dissemination**

**Action 1.1** Develop more comprehensive modeling tools, mapping, data sets, and observations to track potential and actual impacts from Climate Change scenarios. Use these for long-term planning efforts. These mapping and tools need to be at the scale and resolution to be useful for local decision-making. The current data is not sufficient, especially topographic contours, for this purpose.

**Action 1.2** A partnership should be formed between leading research and policy institutes such as UNH and the Center for Public Policy Studies; state and municipal elected and appointed officials; business; and non-profit organizations to assess needs and existing sources of information and develop strategic plan to fill those needs. Work products would include fact sheets, maps, data sets, and other communication tools designed to help guide decision-making. This is less an information gathering process than a review, synthesis, consolidation, and dissemination process.

**ADP Goal 2 - Focus policies and actions to help most at risk populations**

**Action 2.1** Expand public transit modes.

**Action 2.2** Create a clarification within the constitution to allow the gas tax to be used for transportation adaptation.

**Action 2.3** Prepare for air quality changes and related respiratory considerations.

**ADP Goal 3 - Empower public health officials**

**Action 3.1** Prepare for heat waves and temperature extremes.

**ADP Goal 4 - Strengthen state and local protection of New Hampshire's natural services network**

**Action 4.1** Preserve 75% of all federally designated farm land.

**Action 4.2** Protect potable drinking water systems. Improve the management of groundwater as population and demand grow.

**Action 4.3** Preserve floodplains and wetlands to ensure the integrity of their ecological functions, especially as they relate to flood control.

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### **ADP Goal 5 - Increase resistance to extreme weather events**

**Action 5.1** Guide future development away from most vulnerable flood prone areas. If possible provide economic incentives for this.

**Action 5.2** Render the existing built environment more resilient to weather related impacts (increase in extreme precipitation events, sea level rise).

**Action 5.3** Require consideration of Climate Change guidelines in building codes for regional, municipal, and urban planning (codes for buildings as well as site development).

**Action 5.4** Explore ways to move existing development out of harms way and create retreat policies for areas impacted by sea level rise and flooding.

### **ADP Goal 6 - Strengthen the New Hampshire economy**

**Action 6.1** Provide incentives for existing businesses to adapt to Climate Change, anticipating the effects on key industries in the state (e.g.: skiing; tourism; manufacturing; agricultural).

**Action 6.2** Provide incentives, investments and technical assistance to new business development focused on adaptive technologies and services (e.g. energy reducing installations, green businesses producing environmentally friendly products and services, proven technologies that provide for reduction in energy use and greenhouse gas emissions (free energy audits; education, etc.).

**Action 6.3** Invest in infrastructure that will support the current businesses in our state in adapting to Climate Change.

### **ADP Goal 7 - Permanently establish a Climate Change Advisory Council**

**Action 7.1** Develop specific recommendations for Climate Change Adaptation strategies, processes, and policies for government agencies, private industry, public health officials and the general public.

**Action 7.2** Direct relevant state agencies including the Department of Environmental Services, Department of Transportation, Department of Resources and Economic Development, Office of Energy Planning, Department of Agriculture, Fish & Game, Department of Health & Human Services, Office of Emergency Management and the Public Utility Commission to establish an interagency Climate Change Team.

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## New Hampshire Climate Change Policy Task Force Agriculture, Forestry and Waste (AFW) Working Group Interim Report

This document contains the *proposed final list of goals and actions* that will be developed and submitted by the **Agriculture, Forestry and Waste** Working Group for consideration by the Climate Change Policy Task Force. The list includes summaries for each goal and action, for which the working group anticipates submitting program descriptions and evaluations to the Task Force.

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### **Goal and Action Descriptions:**

#### **AFW Goal 1 - Carbon Sequestration**

##### **Action 1.1 Research Forest Management and Sequestration**

Examine NH's public and private forests and determine how they could be best managed to maximize carbon sequestration and to develop potential markets for offsets from terrestrial carbon sinks. The goal would be to conduct research on NH's forest ecosystems and identify the management systems and standards for carbon "sink" offset projects that would optimize sequestration of carbon. There are about 60 universities and other organizations that are doing work in this area and additional research and major conclusions are needed. It should be included in the report because setting the agenda will attract funding sources.

##### **Action 1.2 Build Up Soil Carbon**

Support greater adoption of cultivation practices that increase soil carbon content and increase the capacity of soil to hold nitrogen by cultivating cover crops. Increasing the use of cover crops can increase the soil carbon content and potentially increase the nitrogen content of soil and reduce fertilizer needed.

###### **Action 1.2.1 Increase Cover Crops**

Support greater adoption of cultivation practices that increase soil carbon content and increase the capacity of soil to hold nitrogen by cultivating cover crops. Increasing the use of cover crops can increase the soil carbon content and potentially increase the nitrogen content of soil and reduce fertilizer needed.

###### **Action 1.2.2 Improve Water and Nutrient Use**

Support the adoption of water and nutrient application procedures and rates that minimize soil respiration (CO<sub>2</sub> release) and maximize carbon retention. There are other benefits to improving water and nutrient use.

###### **Action 1.2.3 Increase Conservation Tillage/No-Till Farming Practices**

Encourage conservation tillage and related cropland soil management to improve per acre soil carbon storage rate. Practices that result in less disruption of the soil or increase organic content through carbon deposition can increase the carbon content (stock) of soil or reduce its rate of loss (flow) to the atmosphere. Reduced tillage is also less energy intensive and requires less fuel. This option has benefits in addition to carbon sequestration.

##### **Action 1.3 Land Protection**

Preserving agricultural and forest lands preserves the soil's ability to store carbon that would otherwise be released into the atmosphere if disturbed. The biomass on these lands is also able to absorb more carbon and further increase the amount of carbon that is sequestered. Disturbance releases the carbon stores and reduces or eliminates the capacity to absorb carbon dioxide.

###### **Action 1.3.1 Agriculture Land Protection**

Expand NH's efforts to acquire and preserve open space, reduce sprawl and encourage use of existing infrastructure to avoid releases of carbon stored in agricultural soils during development. Avoiding the conversion of this land to development, in conjunction with smart growth measures, preserves the carbon absorption capacity of existing agricultural lands and enables continued carbon sequestration from the atmosphere.

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### **Action 1.3.2 Forested Land Protection**

Expand NH's current efforts to acquire and preserve open space, reduce sprawl and encourage use of existing infrastructure to avoid releases of carbon due to conversion of forest to development. When forest land is converted, carbon is emitted and the soil's ability to sequester carbon from the atmosphere is diminished.

### **Action 1.4 Forest Management**

Forests are capable of absorbing and storing carbon from the atmosphere. Managing forests can allow this capacity to be optimized and the eventual release of carbon following tree mortality to be used to displace fossil fuel emissions.

#### **Action 1.4.1 Durable Wood Product Promotion**

Promote the use of durable wood products over other construction materials through a voluntary education campaign on climate change and what consumers can do to minimize their impacts. This program would encourage individual and business consumers to consider certified-sustainable wood products when buying furniture, building homes, and working on other structures. In addition, the state in its procurement process could lead by example and maximize its purchase of wood products. To ensure that increased use of timber results in a benefit to the environment, wood products could be produced and manufactured as a result of certified-sustainable harvesting practices.

#### **Action 1.4.2 Enhance Carbon Sequestration**

Land-based carbon sequestration *also* involves planting trees in built environments (*e.g., urban and roof top planting*) improving management of productive forestland and promoting reduced impact agriculture.

#### **Action 1.4.3 Provide Guidance on Carbon Sequestration and Biomass Harvesting to Land Owners and Professional Foresters**

Land owners and professional foresters would benefit from guidance on 1) the effects of Climate Change and options that might optimize carbon sequestration on their property; and 2) biomass harvesting practices. The Department of Resource & Economic Development, Division of Forests & Lands should include this information in its next version of *Good Forestry in the Granite State*.

## **AFW Goal 2 - Fuel and Electricity Generation**

The AFW sector presents some opportunities for heat and electricity generation that can displace the combustion of fossil fuels, as well as manage some issues associated with waste.

### **Action 2.1 Waste-to-Energy**

Investigate the potential to generate power by incinerating waste. Consideration needs to be given to whether the combustion of trash would result in greater or less CO<sub>2</sub>e emissions per unit of energy than the fossil fuel-fired power generation it displaces and to the emission per energy produced of other pollutants and toxics.

#### **Action 2.1.1 Clean Municipal Biomass Waste**

The state could encourage the development of resources necessary to collect and burn clean municipal biomass waste (*e.g. brush, leaves*) to generate energy possible in a CHP facility that provides electricity and district heating.

#### **Action 2.1.2 Biogas**

Anaerobic biological processes in the waste (water and solid) management sector generates methane (CH<sub>4</sub>), which has a global warming potential 25 times greater than CO<sub>2</sub>. Managing the conditions and the resulting gas can reduce the potency of the AFW sectors' emissions.

##### **2.1.2.1 Landfill Gas**

Landfills naturally create methane gas (CH<sub>4</sub>, a GHG) as a by-product. Rather than being released into the air, methane can be captured and utilized as a fuel to produce energy or burned off (flared), thus vastly reducing its warming potential. Although NH has seen a significant decrease in landfill gas emissions due to flaring and energy generation, the state may want to consider ensuring that this

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progress is maintained and expanded upon as possible. NH has also seen successful projects for capturing methane gas for energy.

### **2.1.2.1.1. Energy Project Development**

This program would seek to increase the number of landfills in NH that reduce methane and generate electricity by: encouraging the generation of additional electricity from landfill gas-to-energy (LFGE) projects in the state through the NH renewable portfolio standard; working with the PUC and NHDES to streamline project permitting; and supporting the interconnection of these projects by working with the PUC to ensure that even small projects are allowed to connect to the grid. The main barrier to this option is the availability of transmission lines (PUC issue).

### **Action 2.2 Encourage Sustainable Biofuel Crop Production**

The state could promote the development of renewable sources of biomass energy feedstocks in the state.

#### **Action 2.2.1 Assure the Appropriate Maintenance and Expanded Use of Forest Biomass Feedstocks for Electricity (Fuel Switching)**

In a move similar to the conversion of Schiller Station in Newington, the state could encourage the conversion of fossil fuel-fired plants to biomass facilities. Consideration should be given to ensure that harvest rates of the state's forest resources do not exceed sustainable harvest rates and lead to degraded landscapes. This practice is more one of balance, e.g., when biomass is used to replace coal, which produces more GHG.

#### **Action 2.2.2 Expanded Use of Forest Biomass Feedstocks for RCI Heating**

The state could encourage the expansion of biomass as a fuel source for RCI furnaces, boilers and CHP systems. The best use of biomass could be in large buildings, such as municipal buildings and other institutions. The State could offer incentives to convert systems to biomass, perhaps according to a priority listing of inventoried buildings. This option has additional benefits and is consistent with an ongoing program conducted by the Dept. of Agriculture, Markets & Food and the Dept. of Environmental Services.

### **AFW Goal 3 - Recycling and Source Reduction**

A significant portion of the solid waste stream is composed of materials with a significant embodied energy and some materials have the potential to be recycled or reused and displace the emissions associated with producing new materials from virgin raw materials.

#### **Action 3.1 Increased Recycling and Source Reduction**

This program would seek to increase source reduction and recycling of municipal solid waste (MSW) to a specified level above current rates and to maintain that level into the future. Potential implementation strategies include: increasing education and enforcement of recycling requirements increasing composting of source-separated organics (from commercial, industrial, and institutional generators and residential sources) increasing small business recycling supporting recycling markets increasing electronics recycling increasing "producer responsibility" requirements for products.

##### **Action 3.1.1 Pay-As-You-Throw Initiative (PAYT)**

This initiative would provide education and incentives to communities to adopt Pay-As-You-Throw, which would in turn require households to pay for waste disposal based on the amount they generate through a fee that is assessed for each bag or can of waste or based on the weight of the trash, thereby providing an incentive for households to generate less waste. Any increase in recycling costs could be recovered from the fee for disposal. DES already encourages PAYT, which has proven very successful where implemented.

##### **Action 3.1.2 Encourage the Construction and Use of Bioreactors (NEW)**

Bioreactors speed up the decomposition of solid waste, generating methane more quickly. That methane can be captured and burned for energy, in lieu of fossil fuels.

### **AFW Goal 4 - Regional, State and Local Food Supply**

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Transportation is responsible for a significant portion of the GHG emissions associated with the food supply. The development of a stronger local food network can reduce the emissions associated with food and may also insulate the state from disruptions in the food supply in the event that energy supply is threatened. Only a small fraction of the food consumed in the state is currently produced in the state. Dairy is the most significant contribution to the state's food supply, with New Hampshire farms not quite producing enough to meet the state's demand for fluid milk, but not enough for other dairy products. Apples, eggs and maple syrup are also produced for wholesale and retail markets. Smaller quantities of other fresh fruits and vegetables, and meats from various types of livestock animals are also produced in New Hampshire. The supply of food produced regionally (New England or Northeast) is larger and more diverse. It is appropriate to support this goal and to endorse better utilization of available land resources. Under this approach, 5.1 (Improve Opportunities for New Farmers) will become an objective under 5.2 (Strengthen Local Food Network).

### **Action 4.1 Strengthen Local Food Network**

This program would seek to increase the amount of food consumed by NH residents from locally grown sources. Food processing, packaging, transportation, and marketing consume the vast majority of the energy used in the commercial food industry. Food transported from the larger food producing centers can travel more than 20 times the distance of locally grown produce. NH lacks infrastructure for processing food, which would increase shelf life.

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## New Hampshire Climate Change Policy Task Force Electricity Generation & Use (EGU) Working Group Interim Report

The following document contains the *proposed final list of goals and actions* that will be developed and submitted by the **Electricity Generation and Use Working Group** for consideration by the Climate Change Policy Task Force. The list includes summaries for each goal and action, for which the working group anticipates submitting program descriptions and evaluations to the Task Force.

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### **Goal and Action Descriptions:**

#### **EGU Goal 1 - Increase Demand Response, Energy Efficiency, and clean Combined Heat & Power**

##### **Action 1.1 Evaluate decoupling utility sales from revenues; continue to factor energy efficiency into rates**

Historically, distribution companies established an electricity sales forecast that included both fixed and variable costs of electricity production, and set rates in accordance with that forecast. Once these rates were determined, the distribution companies' revenue is directly dependent on the amount of kilowatt hours sold – creating a “throughput incentive.” Under this paradigm, a reduction in electricity sales due to the success of efficiency programs can be harmful to a distribution company's financial performance. To remove this disincentive to energy efficiency, one solution is to “decouple” sales from revenue and factor in the impact due to efficiency in rate design.

##### **Action 1.2 Evaluate a Least Cost Procurement policy to purchase cost-effective “demand-side” resources, rather than building new large supply capacity**

Each electrical distribution company periodically submits procurement plans to the Public Utilities Commission (PUC). The utilities could be required to include specified percentages (to-be-determined at a later date after further study by the PUC) of cost effective energy efficiency in their plans. Energy efficiency is now treated as capacity in the ISO New England's new Forward Capacity Market (FCM) and can be bid upon at auctions.

##### **Action 1.3 Evaluate establishment of a Combined Heat & Power (CHP) Portfolio Standard**

Develop and implement a CHP Portfolio Standard that mandates that a to-be-determined percentage of the retail sales to in-state customers will be met by CHP sources by a to-be-determined date. Similar to emissions limitations on biomass power under NH's RPS, emissions limitations may need to be incorporated into a CHPPS to ensure that the standard is met using new alternative technologies, such as microwind and fuel cells, and explicitly excluding diesel engines due to their high emission rates of nitrogen oxides.

##### **Action 1.4 Evaluate other options to encourage demand response, energy efficiency, and CHP**

Pricing mechanisms could be employed to encourage energy conservation and efficiency during peak load events when the extra capacity may be drawn from the dirtiest sources. These mechanisms may also apply to distributed generation, a process which may actually increase emissions depending on the generation's emission factor. In this event, the pricing mechanisms could be paired with a program to push for renewable or low emission energy sources through incentives (e.g. loans, grants, rebates, tax credits) to guide the development of the increased distributed capacity. A funding mechanism for phased-in installation of new meters could also be considered.

#### **EGU Goal 2 - Reduce supply-side direct emissions from existing generation and build new renewable generation**

##### **Action 2.1 Implement the Renewable Portfolio Standard (RPS); evaluate future more stringent standards**

The program currently requires retail electricity providers (AKA distribution utilities or Load Serving Entities) to acquire renewable energy certificates (RECs) representing one MWh each and tracked by ISO-NE in sufficient amounts to meet specified percentages of their portfolios. NH RPS requirements call for the following amounts of generation by 2025: new solar 44,000 MWh (0.3%), new other (wind, geothermal, ocean thermal, wave, current, or tidal energy, hydrogen derived from biomass fuels or methane gas, eligible biomass or methane gas, the equivalent displacement of electricity by end-use customers from solar hot water heating systems used instead of electric hot

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water heating, additional new solar, or incremental new eligible biomass, methane gas, or hydro) 2,340,000 MWh (16%), existing eligible small (<25MW) biomass & landfill methane 950,733 MWh (6.5%), and existing small (<5MW) hydro 146,267 MWh (1%). NH RPS demand combined with regional RPS demand is modeled to lead to new development in NH of 960 MW wind, 56 MW biomass, 15 MW landfill gas, & 33 MW solar by 2025.

### **Action 2.2 Implement the Regional Greenhouse Gas Initiative (RGGI); evaluate future more stringent caps**

The policy reduces carbon dioxide emissions by means of a “cap & trade” program. The cap sets the maximum amount of emissions that can be emitted in aggregate from all regulated sources in the region. It does not put any type of limit on emissions for individual units. Instead, allowances are created that each represent one ton of carbon dioxide. Allowances are marketable commodities that can be purchased, sold or banked (held for future use). Each quarter, a number of allowances will be auctioned. Regulated sources need to obtain enough allowances to cover the amount of carbon dioxide they emit by the end of each 3-year compliance period. A cap and trade program draws on the power of the marketplace by not prescribing specific mechanisms for regulated sources to manage their carbon emissions. Regulated sources can design their own compliance strategies to obtain all of the allowances they require using the lowest cost approach. Revenues from the auctioning of allowances can be invested in additional energy efficiency that further reduces emissions and saves money over time.

### **Action 2.3 Evaluate a New Source Performance Standard (NSPS) for new fossil fuel fired power plants**

In addition to RGGI, a fuel-neutral, output-based emission standard for CO<sub>2</sub> could be developed that is applied to all new power plants above a specific size threshold. The work group requested a sensitivity analysis of two options (i.e., >10 MW & >30 MW) for applicability thresholds, for both potential emissions reductions and costs. Similarly, the group requested a range of analysis options for the level of the standard, namely from 250 lb/MWh (achievable by applying carbon capture & sequestration to new integrated gasification combined cycle (IGCC) coal plants at an 87.5% reduction from an assumed uncontrolled level of 2,000 lb/MWh) to 1,100 lb/MWh (the current ISO-NE marginal emission rate, roughly equal to a conservatively high uncontrolled level for natural gas-fired units).

### **Action 2.4 Implement an improved Energy Facilities siting process that identifies/eliminates barriers (e.g., transmission constraints) to building new renewable generation**

The state could identify and address limitations in the existing capacity of transmission lines and other obstacles that would otherwise limit the siting, transmission and sales of renewable energy from the areas where its generation would otherwise be most viable.

### **Action 2.5 Seek additional ways to encourage new renewable generation (e.g., eliminate barriers to allow new decentralized renewable energy projects)**

The state could work with the University of New Hampshire, as well as provide incentives to businesses, to research and develop renewable energy technologies that are best suited to the state. Funds from the RPS Alternative Compliance Payment (ACP) could be used for this purpose.

### **Action 2.6 Evaluate retention of existing nuclear power generation**

While new nuclear generation is highly controversial, is politically infeasible, has high up-front capital costs, and is not supported by a majority of the work group, reducing long term greenhouse gas emissions by 75% to 85% will be even more challenging if existing nuclear generation ceases and is replaced with fossil fuel-fired generation. A new natural gas-fired plant at Seabrook is already in the planning stages. Opponents contend that life cycle emissions, rather than strictly the lack of emissions from electricity generation, should be considered for nuclear generation. However, life cycle emissions for fossil fuel fired generation are higher than those for nuclear generation. Thus, there would be a significant net increase in emissions if fossil fuel fired generation displaces nuclear generation. Opponents also contend that nuclear generation should be compared to renewable generation or energy efficiency. However, the magnitude of renewable generation and energy efficiency that would be needed to not only reduce current emissions by 75% to 85%, but also to replace nuclear capacity (Seabrook is rated at greater than 1,100 MW or nearly 3 times the size of the Cape Wind project) may be an unrealistic expectation. Separate evaluations of maximum renewable generation and energy efficiency potential may determine this.

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## New Hampshire Climate Change Policy Task Force Residential, Commercial and Industrial (RCI) Working Group Interim Report

The following document contains the *proposed list of goals and actions* that is currently being developed and will be submitted by the RCI Working Group for consideration by the Climate Change Policy Task Force. The list includes summaries for each goal and action, for which the working group anticipates submitting program descriptions and evaluations to the Task Force.

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### **Goal and Action Descriptions:**

#### **RCI Goal 1 - Maximize Efficiency in New Construction and Existing Buildings**

##### **Action 1.1 Maximize Efficiency in New Construction**

Maximize energy efficiency and minimize net CO<sub>2</sub>e output in new residential, commercial and institutional construction. To the extent economically feasible, minimize life cycle CO<sub>2</sub>e output and life cycle energy consumption and costs by building new buildings that incorporate state-of-the art energy efficiency and renewable energy systems in the building envelope, operating systems (HVAC in particular), and energy consuming appliances and devices. This is to be achieved through a combination of outreach, marketing, education and training to building owners, developers, managers, operators, architects, engineers, contractors and trades people; graduated financial incentives for above code performance, and access to attractive financing to amortize the cost of extra energy efficiency measures over the term of the financing.

##### **Action 1.2 Maximize Efficiency in Existing Conditioned Buildings - Residential**

Retrofit existing NH housing stock to minimize or eliminate net CO<sub>2</sub>e output, and further, to ensure that current and future investments minimize embedded CO<sub>2</sub>e output. To the extent economically feasible, program elements to include: building shell and fenestration upgrades; space conditioning equipment upgrades/replacements, including ductwork; domestic hot water system upgrades; lighting; reduced water usage; appliances; and use of renewable energy systems. Any replaced equipment would be permanently removed from service.

##### **Action 1.3 Maximize Efficiency in Existing Conditioned Buildings – Commercial & Industrial**

Retrofit existing NH commercial and industrial buildings to minimize or eliminate net CO<sub>2</sub>e output, and further, to ensure that current and future investments minimize embedded CO<sub>2</sub>e output. To the extent economically feasible, program elements to include the following: lighting; heating, ventilation and air conditioning (HVAC) system upgrades/replacements; process (air compressor equipment, air leak reduction, motors, VFDs, injection molding equipment, etc.); control equipment and technologies to ensure lighting, HVAC, business equipment (copy machines, computers, motors, etc.) and other equipment is operating optimally to save energy and to reduce demand; refrigeration equipment (grocery stores, supermarkets, gas station / convenience stores, restaurants, etc.); building shell and fenestration upgrades; hot water system upgrades; reduced water usage; use of renewable energy systems. Any replaced equipment would be permanently removed from service.

##### **Action 1.4 Upgrade Building Energy Codes & Increase Code Compliance**

Energy codes can be used to both regulate energy use in new construction and substantial renovation of all buildings, and, when administered in tandem with “stretch codes” or “beyond code” provisions, can also inform other high performance or “green” construction standards to serve additional state policy objectives. By ensuring the regular update of the states residential and commercial building energy codes that reference the latest national/international model code as a baseline, the state sets as its “floor” the latest technologies and practices inherent in that most updated code. In addition, the state can then use an informative appendix to the code to define the “ceiling” it wishes to establish in setting beyond-code high performance building standards. Such stretch code standards can be used to inform policies such as state facility construction standards; ratepayer funded energy efficiency new construction programs; private development of the most efficient buildings through incentives such as tax credits; and as guidance for cities and towns that may wish to develop building standards beyond those contained in the state building energy

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code. However, any effort to capture savings from building energy codes has to come with the understanding that the best code is only as good as the compliance rates with that code, and, thus, the state will also need to create training, certification and enforcement processes to ensure that all new buildings constructed in New Hampshire will meet the state's building energy code.

### **Action 1.5 Establish an Energy Properties Section in MLS Listings**

Include an energy properties section in the Multiple Listing Service (MLS) real estate listings. Establish a specific, defined set of criteria/ratings to be included as options for this section of the MLS listings. The idea being that the consumer is aware that energy is a factor in decision-making, and provides the consumer with a means for comparison between homes.

### **Action 1.6 Establish a Comprehensive Energy Efficiency and Renewable Energy Education and Demonstration Center**

There is a tremendous gap between knowledge and practice. It is estimated that by just using current technology correctly a reduction of 30% of building energy consumption and associated greenhouse gas emissions could be achieved. The establishment of a comprehensive energy efficiency and renewable energy education and demonstration center provides accessible resources and educational opportunities for those who design, build, evaluate/rate, maintain, sell and occupy buildings. This facility would sponsor ongoing training and offer a demonstration site for energy efficient and renewable energy practices for homeowners, architects and engineers. It would also provide training and support to builders, code officials, energy raters, and establish working groups for building managers, and real estate agents.

## **RCI Goal 2 - Maximize Efficiency in Commercial, Industrial and Municipal (CIM) Processes**

### **Action 2.1 Maximize Efficiency in CIM Processes - Incentive Programs to Install Premium Efficiency Equipment**

Commercial, industrial, and municipal processes using motors, transformers, VFDs, and compressed air can minimize or eliminate net CO<sub>2</sub> output from these sources by properly designing process lines and selecting efficient equipment. This can be achieved through a comprehensive energy audit performed as part of the CORE energy efficiency programs run by the gas and electric utilities to identify improvements to and reductions in CO<sub>2</sub> emissions from CIM processes. Incentive programs could be offered to help offset the additional costs of premium efficiency equipment.

### **Action 2.2 Maximize Efficiency in CIM Processes - Incentive Program to Promote Light Harvesting and Waste Heat Recycling**

Commercial, industrial and municipal processes could use light harvesting/efficiency and waste heat recycling to minimize or eliminate net CO<sub>2</sub> output from these sources through proper design and equipment selection. This can be achieved through a comprehensive energy audit performed as part of the CORE energy efficiency programs run by the gas and electric utilities to identify improvements to and reduction in CO<sub>2</sub> emissions from CIM processes. Incentive programs could be offered to help offset the cost of additional equipment needed to implement this measure.

### **Action 2.3 Mandatory CO<sub>2</sub> Reporting for CIM facilities**

Commercial and industrial facilities shall be required to report their annual CO<sub>2</sub> emissions in an effort to increase awareness and promote CO<sub>2</sub> reductions. Whereas many facilities are already required to inventory and report other pollutants to DES on an annual basis, this could easily be added to that reporting structure. A facility would be able to use a constant emissions monitor or fuel use information combined with emissions factors to determine its emissions. All facilities burning an amount of fossil fuels above a set minimum would be required to report emissions and to pay an emissions-based fee proportionate to the amount emitted.

## **RCI Goal 3 - Install Renewable Thermal Systems and Low CO<sub>2</sub>e Thermal Systems**

### **Action 3.1 Thermal Renewable Portfolio Standard**

The Thermal Study Working Group formed pursuant to the Clean Energy Act passed last legislative session discussed a thermal renewable portfolio standard (TRPS) and determined it would not be recommended. This is based in the challenges presented by the absence of a regulated industry and established a clear set of actors responsible for holding a portfolio, and the administrative burden this approach would place on multiple actors. The study group

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determined that a strong driver is necessary, but the performance standards would be more appropriately placed in the implementation of a thermal systems benefit charge. The RCI WG supports this approach.

### **Action 3.2 Thermal Systems Benefits Charge**

Thermal energy use for space, water and process conditioning comprises approximately one third of our energy use. A system benefits charge levied on imported fossil fuels used to produce thermal energy will fund a program to increase the renewable energy component of New Hampshire's thermal energy requirements. The TSBC will be levied on fuel oils, coal used for heating, kerosene, propane and natural gas. The levy would be based on the carbon output per delivered energy unit, for example the tons CO<sub>2e</sub> per million Btu. The proceeds will be deposited in a fund to be administered by a statewide authority. The funds will be used to provide incentives for the use of renewable energy sources to change the temperature of space, water, air or some other material for a useful purpose. The incentive level will be directly correlated to the efficiency or conservation levels of the end use.

## **RCI Goal 4 - Education/Behavior Changes**

### **Action 4.1 Energy Efficiency and Conservation in School Curriculum**

Existing K-12 school curriculum standards and initiatives are recommended to be enhanced to develop citizens with a comprehensive understanding of the complex issues of global warming and climate change, and to promote energy efficiency and conservation measures. Greenhouse gas emissions would be achieved through the learning of sustainable behavior by the students and their families and communities, and inspiration and preparation of students for engagement in solutions to global warming challenges. Sustainable behavior includes facets such as daily habits, life-long decisions, individual advocacy, and community involvement. To meet standardized curriculum enhancements, comprehensive and ready-to-use multi-disciplinary curriculum modules will need to be prepared, and teacher development will need to occur.

### **Action 4.2 Maximize Efficiency through Building Management Programs**

Utilize educational opportunities to help with the identification of and continual improvement of building management best practices. Energy audits are one way to identify opportunities to minimize or eliminate net CO<sub>2e</sub> output in existing buildings, while "beyond code" certification is one way to affect new buildings. CO<sub>2e</sub> reductions can be achieved through education provided to decision makers for new facilities and facility managers for existing facilities. Improved knowledge of best practices will help reduce energy usage and/or displace existing energy sources with renewables.

### **Action 4.3 Residential Behavior Change Programs**

Since residential emissions account for roughly half of all greenhouse gas emissions (when personal vehicles are included), there needs to be an organized, concerted effort to engage residents in reducing their household energy consumption. Such a program would provide the information, tools, and support needed to enable households to understand how they use energy and map out a strategy to reduce their energy consumption. The financial savings associated with household energy conservation and efficiency enhancements should be emphasized. The program should make use of the various networks and communities of which residents are part (towns, neighborhoods, civic organizations, businesses etc) since these communities can encourage and support their members in making sustained, socially beneficial changes at the individual household level. To foster change at the household level, research-based behavioral change strategies that target the root causes of climate change inaction should be employed through a comprehensive system of outreach activities that do not rely on information-based campaigns.

**INTERIM REPORT FOR DISCUSSION ONLY – DO NOT COPY OR CITE**  
**New Hampshire Climate Change Task Force**  
**Land Use and Transportation (TLU)**  
**Workgroup Interim Report**

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**Goal and Action Descriptions:**

**TLU Goal 1 - Reduce Vehicle Emissions per Vehicle Mile Traveled**

**TLU Goal 1.A - Influence the vehicle market through regulatory standards to reduce greenhouse gas emissions from new vehicles.**

**Action 1.A.1. Support/promote more stringent Corporate Average Fuel Economy Standards (CAFE) at the federal level.**

**Action 1.A.2. Support/promote establishment of federal fuel economy standards or incentives for medium and heavy duty vehicles.**

**Action 1.A.3. Adopt California Low Emission Vehicle standards in NH, including the GHG tailpipe standards established by the Pavley bill.**

**TLU Goal 1.B - Influence the vehicle market by increasing consumer demand for higher fuel economy vehicles.**

**Action 1.B.1 Provide incentives to consumers at point of purchase to chose a more efficient vehicle.**

Example policy actions to implement/continue:

- Revenue neutral feebate applied to car purchase
- Green fleet incentive programs

**Action 1.B.2. Provide incentives to consumers to retire low fuel economy vehicles by establishing a carbon-based annual registration fee.**

**TLU Goal 1.C - Increase the use of Cleaner Fuels & Advanced Technologies**

**Action 1.C.1. Establish a Low Carbon Fuel Standard for the region and adopt in NH.** The LCFS will set “carbon intensity” levels for motor vehicle fuels that account for GHG disbenefit of land disturbance - ensures sustainability.

**Action 1.C.2. Promote Adoption of New Vehicle Technology.** As vehicle technology is developed, promote adoption of advanced technologies such as plug-in hybrid vehicles, fuel cell, and full electric vehicles in NH fleets and by NH government.

**Action 1.C.3. Reduce Diesel Particulate Emissions.** Reduce diesel particulate emissions through use of diesel retrofit devices. NOTE: consensus is to retain in final options list as important although climate impacts are uncertain at this time (recent studies indicate could be significant). Action is likely to be pursued due to health benefit of reduced exposure to harmful diesel exhaust more than as a GHG reduction action. Will not conduct a full scale evaluation.

**TLU Goal 1.D - Decrease GHG Via Changes in Driver Behavior**

**Action 1.D.1. Speed limits**

**Action 1.D.1.1. Facilitate more efficient driving speeds through enforcing current speed limits on highways and interstates.**

**Action 1.D.1.2. Lower existing speed limits on highways and interstates.**

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**Action 1.D.1.3. Maintain travel speeds on rural and arterial roadways by limiting curb cuts and other impediments to steady speeds.**

**Action 1.D.2. Reduce Idling.** Implement a robust idling reduction regulation that targets all vehicles and includes enforcement of the limits at both the state and local level.

**Action 1.D.2.1. Truck idling reduction through use of on-board equipment or truck stop electrification.**

**Action 1.D.2.2. Locomotive Idling Reduction through use of on-board equipment or enforcement of idling limitations**

**Action 1.D.2.3. Enact a prohibition against idling in school zones and when traffic is stopped for draw bridges.**

**Action 1.D.3. Improve Traffic Flow.** Improve traffic flow through physical changes to the transportation system, such as roundabouts and signal light synchronization, and target funding sources to those projects that will result in the greatest emissions reduction

**Action 1.D.4. Motor Vehicle Inspection Programs.** Improve fuel economy of the vehicle fleet through proper vehicle maintenance by expanding upon current on-board diagnostic (OBD) vehicle inspection/maintenance program to include heavier vehicles.

**Action 1.D.4.1. Expand inspection of light duty/passenger vehicle on board diagnostics motor vehicle inspection program to include heavier vehicles up to 10,000 pounds.**

**Action 1.D.4.2. Upon federal requirement for medium and heavy duty vehicles to have OBD systems, implement a statewide testing program for these vehicles.**

### **TLU Goal 2 - Reduce Vehicle Miles Traveled**

#### **TLU Goal 2.A - Change consumer behavior to reduce travel demand**

**Action 2.A.1. Commuting Trip Reduction Initiative: Encourage employers to implement measures to reduce commuting trips.**

Example policy actions to implement/continue:

- Promote a variety of approaches that employers might pursue: telecommuting; flexible/compressed work schedules; carpooling benefits (e.g., priority parking) and/or support (e.g., stipends, coordination, ride-home guarantees); parking cash-out – which assigns a monetary value to “free” parking provided for employees and “pays” those who utilize other travel options; job location swapping
- Provide financial incentives for businesses to implement these types of programs (e.g., reduced business taxes, grants) – best if incentive varies with degree of successful implementation (e.g., % trips eliminated, VMT reduced)
- Promote EPA’s Best Workplaces for Commuters program.
- CROSSOVER: Government Leadership and Action (GLA)

**Action 2.A.2. Congestion Pricing**

Example policy actions to implement/continue:

- Increase toll rates during high-volume usage periods on existing toll roads.

**Action 2.A.3. Vehicle Miles Traveled-Based Insurance Premium Structure**

**Action 2.A.4. Vehicle Miles Traveled-Based Car Registration Fees**

**Action 2.A.5. Increase the Gas Tax**

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Example policy actions to implement/continue:

- Amend the constitution to permit the use of gas tax funds for all forms of transportation infrastructure and operation (to provide funds for alternative modes (supports Obj 2B)).
- NOTE: also supports purchasing of more fuel efficient vehicles (Obj. 1B); lower surcharges for lower carbon fuels would encourage use of those fuels (Obj. 1C)

### **Action 2.A.6. Add a Carbon Surcharge on all Fuel Sales**

Example policy actions to implement/continue:

- Apply a carbon surcharge to fuel sales to internalize the social climate impacts for individual consumer purchases (and encourage users to adjust/reduce demand).
- Evaluate potential applicability of constitutional restriction.
- NOTE: also supports purchasing of more fuel efficient vehicles (Obj. 1B); lower surcharges for lower carbon fuels would encourage use of those fuels (Obj. 1C); and provides funds for other actions (e.g., Obj. 2B).

### **Action 2.A.7. Reduce Parking Availability/Increase Parking Rates for Public Parking/Eliminate Free Public Parking (e.g., at malls, retail/commercial lots, public lots/garages)**

Example policy actions to implement/continue:

- Parking impact fee – charge property owners per space (allow fees to be recouped through increased parking rates for users) – fees paid to municipalities/state could be put toward public transit/travel reduction efforts
- Influence parking standards in local zoning (e.g., reduced requirements/maximums, “deferred” parking construction)
- NOTE: also supports local transit by encouraging ridership (Obj. 2B)

**TLU Goal 2.B - Establish a balanced, integrated, multi-modal transportation system (including improved and expanded transit service (bus and rail), park-n-rides, and bicycle/pedestrian infrastructure) to increase the availability and use of alternative travel options.**

### **Action 2.B.1. Provide infrastructure and services to increase the use of alternative travel modes for Local/Intra-city travel (and reduce number of local vehicle trips).**

#### **Action 2.B.1.a. Expand local transit system service – establish new routes on existing systems and new service in additional areas**

Example policy actions to implement/continue:

- Expand existing transit system service areas (add routes)
- Establish local transit systems within additional communities or areas
- Encourage adoption of higher-density, mixed use zoning (with pedestrian-oriented/walkable design standards) – “Transit-Oriented Development” - around bus stations/stops; locate new stops/terminals in areas with high-walkability and good connections to inter-city transit.

#### **Action 2.B.1.b. Improve existing local transit systems to increase ridership**

Example policy actions to implement/continue:

- Provide more frequent service on existing routes
- Provide higher quality services (add amenities and functionality on buses and at stops)
- Reduce fares
- Encourage adoption of higher-density, mixed use zoning (with pedestrian-oriented/walkable design standards) – “Transit-Oriented Development” - around bus stations/stops; locate new stops/terminals in areas with high-walkability and good connections to inter-city transit.

#### **Action 2.B.1.c. Expand and improve bicycle and pedestrian infrastructure**

Example policy actions to implement/continue:

- Expand existing bicycle-routes program within NHDOT with an emphasis on intra-region and local networks
- Implement “complete streets” roadway improvement standards (at local and state level)

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- Continue implementation of Context Sensitive Solutions (CSS) project development approach by NHDOT
- Encourage adoption of higher-density, mixed use zoning in pedestrian-oriented areas and pedestrian-oriented design standards for new residential and commercial development
- Continue (expand?) “Safe Routes to School” program by NHDOT

### **Action 2.B.2. Provide infrastructure and services to increase the use of alternative travel modes for Inter-City travel (and reduce number of inter-city vehicle trips).**

#### **Action 2.B.2.a. Establish rail service (passenger and freight) throughout NH (i.e., developing/reestablishing rail corridors throughout the state to serve the major transportation corridors – see NHDOT Long-range transportation plan and corridor study concept) Connect Rail Banking Program/Rail Corridor Preservation/Use with Long-range Corridor Planning and Projects**

- Encourage and Strengthen Regional Land Use Planning

#### **Action 2.B.2.b. Implement passenger rail service from Massachusetts to Nashua and Manchester**

Example policy actions to implement/continue:

- Support efforts of the NH Rail Authority (e.g., adequate funding) and NHDOT (e.g., Transit Investment Study)
- Provide funding for capital and operating expenses
- Encourage adoption of higher-density, mixed use zoning (with pedestrian-oriented/walkable design standards) – “Transit-Oriented Development” - around rail stations
- Promote EPA “Smart-Way” program, which encourages industry to evaluate rail freight options

#### **Action 2.B.2.c Sustain and improve current passenger and freight rail service (e.g., *Downeaster* service through Seacoast, existing lines and freight service in northern and southern portions of the state)**

Example policy actions to implement/continue:

- Provide funding to support operating expenses and infrastructure improvements
- Encourage adoption of higher-density, mixed use zoning (with pedestrian-oriented/walkable design standards) – “Transit-Oriented Development” - around rail stations
- Promote EPA “Smart-way” program, which encourages industry to evaluate rail freight options
- Evaluate and improve intermodal connectivity around existing rail

#### **Action 2.B.2.d. Add High-Occupancy Vehicle (HOV) lanes to congested major highway corridors to encourage and support inter-city bus and carpooling**

Example policy actions to implement/continue:

- Provide “Bus-on-Shoulder” and/or HOV lane on I-93 south of Manchester and coordinate with Massachusetts to continue into Boston.

#### **Action 2.B.2.e. Expand Park-n-Ride infrastructure to support inter-city bus and carpooling**

Example policy actions to implement/continue:

- Increase parking capacity at existing sites
- Improve amenities at facilities (e.g., covered parking, “station-like” facilities)
- Provide additional park-n-ride locations
- Increase signage and marketing (“branding” of infrastructure)

#### **Action 2.B.2.f. State Financial Support of Transportation Management Associations (TMA)**

Example policy actions to implement/continue:

- Promote coordinated vanpools

#### **Action 2.B.2.g. Expand inter-city bus service to provide connections between additional areas (both between destinations within NH and to places outside NH)**

Example policy actions to implement/continue:

- Establish service along all major transportation corridors within New Hampshire (as identified by NHDOT’s Long-range Transportation Plan)

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- Encourage adoption of higher-density, mixed use zoning (with pedestrian-oriented/walkable design standards) – “Transit-Oriented Development” - around bus stations/stops; locate new stops/terminals in areas with high-walkability and good connections to local transit.

### **Action 2.B.2.h. Improve existing inter-city bus service to increase ridership**

Example policy actions to implement/continue:

- Provide more frequent service on existing routes
- Provide higher quality services (add amenities and functionality on buses and at stops/stations)
- Reduce fares.
- Provide faster travel (into Boston) using “bus-on-shoulder” during peak (congested) travel periods
- Ensure adequate mobility at destination cities from bus stops/terminals throughout local area (e.g., improved connections to local transit, location of stops/terminals in areas with high-walkability)
- Encourage adoption of higher-density, mixed use zoning (with pedestrian-oriented/walkable design standards) – “Transit-Oriented Development” - around bus stations/stops

## **TLU Goal 2.C - Develop Land Use Patterns that Support a Balanced Multi-Modal Transportation System and Disincent VMT**

### **Action 2.C.1a Implement a GHG-Impact Fee at State Permit Level for New Development Projects**

Example policy actions to implement/continue:

- Implement state level GHG development impact fees
- Require GHG-impact analysis as part of permitting (for larger projects) based on VMT-generation and land disturbance.
- Promote development within and near designated Community Center Areas and Targeted Growth Areas (identified and designated through a collaborative state-municipal process)

### **Action 2.C.1b Adjust State Permit Review Processes, Standards, and Fees To Encourage Low-GHG Impact Development and Enable/Encourage Municipalities to Do the Same**

Example policy actions to implement/continue:

- Establish alternative review processes (faster), more flexible standards for compliance, and/or lower permit application fees to encourage development to use best practices and locate in places that reduce the potential GHG impact (e.g., faster Brownfields cleanup, expedited land development permits, urban exemptions/alternative standards)
- Revise NH statute to enable municipalities to offer an alternative review process for development with specified characteristics under RSA 674:21.
- Promote development within and near designated Community Center Areas and Targeted Growth Areas (identified and designated through a collaborative state-municipal process)
- Require GHG-impact analysis as part of permitting (for larger projects).
- Adopt *Smart School Siting Standards* and standards for other state and municipal buildings (e.g., criteria for evaluating compliance with RSA 9-A)

### **Action 2.C.2 Adopt Strong Incentives for Municipalities to Apply Model State Overlay Zoning for Higher-Density, Mixed Use, Walkable Design Development around Transit Stations (Rail and Bus Stations)**

Example policy actions to implement/continue:

- Promote compact, mixed-use development around transit stations to produce sufficient critical mass to support ridership and further reduce travel demand by co-location of services and uses and improved walkability

### **Action 2.C.3 Develop Model Zoning for Higher-Density, Mixed Use, Walkable Design Development and Encourage Municipal Adoption.**

Establish minimum standards for designated Community Center Areas and Targeted Growth Areas to facilitate lower-impact future growth. Such areas could be identified and designated through a collaborative state-municipal process.

- Could make participation in other incentive programs (e.g., alternative permitting, 2.C.1; funding availability, 2.C.4; technical assistance, 2.C.8) dependent on municipal designation of a Community Center or Targeted Growth Area.

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### **Action 2.C.4. Direct State Funding and Grants Toward Communities with Areas Targeted for Low GHG-impact Development**

Example policy actions to implement/continue:

- Make state discretionary funding and grants available only to communities that have designated Community Center Areas and Targeted Growth Areas (identified and designated through a collaborative state-municipal process)
- Increase and/or prioritize funding to upgrade infrastructure (e.g., walk/bike/transit transportation, public water/wastewater) in designated areas
- Provide state incentive payments (like MA 40S and 40R payments) to encourage municipalities to designate low GHG-impact development areas, encourage higher-density, mixed use, walkable design, and encourage affordable housing.
- Adopt Smart School Siting (and funding) Standards

### **Action 2.C.5. Apply or Enable a Two-Rate Tax Structure Based on GHG-impact of Development**

Example policy actions to implement/continue:

- Reduce property tax burden for development located in Low-GHG-Impact Areas (e.g., higher-density, mixed-use, walkable, serviced by transit) and utilizing GHG-reducing features (e.g., walkable, energy efficient design).

### **Action 2.C.6. Promote Availability and Use of Location Efficient Mortgages in NH**

### **Action 2.C.7. Establish State/Regional Administrative Entity(ies) to Facilitate Transfer of Development/Density Transfer Fee Programs**

### **Action 2.C.8. Continue/Expand Marketing, Education and Technical Assistance to Municipalities**

Example policy actions to implement/continue:

- Continue/expand outreach on the connections between land use, transportation, and environment; incorporating GHG considerations in local planning; and how to effectively adjust future land use patterns (e.g., conserve important natural resource areas, direct development to preferred locations, improve the design of new development to retain community character)
- Expand/continue successful grant and specific technical support efforts (e.g, work under I-93 Community Technical Assistance Program, NH Estuary Project Community Technical Assistance Program, Housing and Conservation Planning Program, and Regional Environmental Planning Program)
- Ensure easy access to necessary tools and information (e.g., model ordinances, factsheets, GIS data, etc.)

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## New Hampshire Climate Change Policy Task Force Government Leadership and Action (GLA) Working Group Interim Report

The following document contains the *proposed final list of goals and actions* that will be developed and submitted by the **Government Leadership and Action** Working Group for consideration by the Climate Change Policy Task Force. The list includes summaries for each goal and action, for which the working group anticipates submitting program descriptions and evaluations to the Task Force.

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### **Goal and Action Descriptions:**

#### **GLA Goal 1 - State Leading-by-Example**

##### **Action 1.1 Establishment of an energy consumption and green house gas emission baseline for state government**

The state should establish the base line for energy consumption and green house gas emissions for state government for the year 2005. This baseline would provide a benchmark to compare energy savings and green house gas reductions from the actions taken by the state to combat global warming.

##### **Action 1.2 Establishment of an Energy Management Unit**

The state should establish an Energy Management Unit (location to be determined) in order to implement and to oversee the recommendations of the Climate Change Task Force, as well as, the Governor's Energy Efficiency Initiative. This unit would be responsible for tracking state government efforts to reduce energy use and cost, reduce greenhouse gases, achieve state energy reduction/climate change goals, and to provide assistance on energy efficiency to local and regional government entities. The Unit should include at a minimum the following resources:

- Overall Energy Manager
- Project Manager
- Data Management Specialist
- Fleet Manager
- Outreach and Education Specialist

##### **Action 1.3 Energy Savings Funding Program**

The state should establish a program that provides funding and other incentives to agencies for projects that achieve savings through energy efficiency and conservation. The state should increase participation in the Demand Response programs offered by the regional Independent System Operator in order to generate additional revenue to sustain funding for the program. The program would limit the funded projects to efficiency and conservation efforts and renewable energy techniques that save their initial investment over a set time period.

#### **GLA Goal 2 - Reduce energy use in government buildings [by 20 % by 2020 and by 50 % by 2050]**

##### **Action 2.1 New Construction and Renovation: State Defined High Performance Public Building Standards/LEED Rating**

Current state policy requires that new construction and major renovations of all state building projects exceed existing State Energy Code by 20%. This satisfies the mid-level criteria for Leadership in Energy and Environmental Design (LEED) – Energy & Atmosphere Section. Past projects have shown that a more stringent level of efficiency may be in order. An immediate target of 30% more efficient than code should be set. Furthermore this requirement should be extended to all building projects receiving state funding (e.g., state facilities and local schools). The state should set additional targets as follows: 1.) mandate that by 2015, all construction now following the policy must be designed to exceed code by 40%; 2.) by 2025, all construction must receive LEED silver certification through the U.S. Green

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Buildings Council (USGBC). To achieve these goals, the state should provide education and outreach to towns, the NH Department of Education, and others, so that they become familiar with LEED standards as well as the benefits.

### **Action 2.2 Existing Buildings**

#### **Action 2.2.1 Energy Star Rating**

The state should examine its existing stock of buildings, benchmark the buildings, and determine which can be considered Energy Star efficient or better. A plan and schedule should be developed for doing audits on the remaining stock and bringing them up to Energy Star efficiency or better.

#### **Action 2.2.2 Re-Commissioning of Existing Buildings**

Over time, routine maintenance may not be performed at an interval needed to keep existing building systems operating at optimum energy saving efficiency. The state should develop a policy of periodic re-commissioning to assure existing state facilities maintain optimum operating efficiency.

#### **Action 2.2.3 Leased Space**

The state should develop a policy of leasing only Energy Star or better rated leased space. This would provide an incentive for private building owners to incorporate energy efficiency into their leased spaces. The state should require all landlords that sign *Gross Leases* with the state supply copies of utility bills to the occupying agencies for their review. This would ensure that reductions in energy use by state employees in leased space are being reflected in cost savings to the state.

### **Action 2.3 Procurement Policies**

Current state policy requires all electronic equipment and appliances purchased (or leased) for use in state buildings to be Energy Star certified or better. This policy should be expanded and more widely implemented. New Hampshire state government has signed on to the State Electronics Challenge (a regional off shoot of the Federal Electronics Challenge at <http://stateelectronicschallenge.net/>). The challenge for NH includes 3 components: Acquisition & Procurement Activities, Operation & Maintenance Activities, and End-of-Life Management Activities. The state should also join the Climate Savers Computing Initiative, lead by the National Governor's Association (NGA). The initiative is a nonprofit organization dedicated to promoting smart technologies that can improve the power efficiency and reduce the energy consumption of computers.

### **Action 2.4 Energy Reduction Measures for State Employees and Facilities**

The state should establish and implement policies to reduce energy use by government employees relative to operation and maintenance of equipment and buildings. The policies should include, but not be limited to, measures related to 1) personal computers, laptops, speakers, monitors, copiers, and printers; 2) lighting and miscellaneous electrical equipment; 3) facility management (e.g., thermostat settings, hot water settings); 4) water conservation; and 5) waste/paper reduction.

### **Action 2.5 Building Automation Systems**

The state should expand the usage of Building Automation Systems (BAS) to optimize the usage of HVAC equipment it owns and leases. Use of BAS greatly increases the interaction of mechanical subsystems within a building, improves occupant comfort, and lowers energy use.

## **GLA Goal 3 - Increase Use of Renewable Energy Sources and Energy Efficient Technologies & Projects [50 % of energy sources to be from renewables by 2050]**

### **Action 3.1 State Siting/Promoting Renewable Energy and Energy Efficiency Technology Projects on State Properties**

The state or municipalities should directly promote renewable projects by allowing modifications to existing buildings and structures to provide much needed space for renewable and energy efficiency technology, such as innovative water reclamation or applying solar panels. These existing properties can improve and change the existing infrastructure to include high-efficiency solutions like water conservation and renewable energy generation in a low-impact locally involved way. Such projects are becoming more and more useful throughout the country. Public lands should be the last resort for such projects as they are designated for the public good as undeveloped areas in the state.

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Public lands have the added benefit of providing communities with something that homes, schools, churches and other community structures cannot. Serenity, calm, and interaction with the out of doors are irreplaceable and protecting these valued areas should be a number one priority.

### **Action 3.2 Renewable Electricity Purchase**

When consumer clean energy purchase options are developed, the state should purchase a certain, and potentially increasing, percentage of its electricity above the existing Renewable Portfolio Standard (RPS) level from new renewable energy sources (Class I). Any marginal cost in electricity could be offset by energy efficiency gains made in state facilities.

### **Action 3.3 Use of Renewables for Building Heat and Hot Water**

The state should establish a policy that requires a certain portion of building energy, whether in state-owned or leased facilities, to come from renewable energy sources. This policy may require retrofits to facilities and could include:

- Bioheating Oil
- Solar Hot Water Heat
- Combined heat and power
- Ground source heat pumps
- Biomass

## **GLA Goal 4 - Reduce the Emissions per mile Traveled of State vehicles**

### **Action 4.1 State Vehicles Procurement Policy**

The state should expand its existing efforts to purchase fuel-efficient low emission vehicles by establishing a procurement policy to reduce GHG emission rates for its fleet of cars and light trucks, whether owned, leased, or contracted. This policy should be met by vehicles that utilize biofuels, compressed natural gas, fuel cells, hybrid technology, or other alternative fuels, and could be encouraged for private fleets statewide. The policy should be accompanied with plans to establish the infrastructure necessary for supplying the alternative fuels and fuel blends.

#### **Action 4.1.1 Fuel Economy Standards**

Require all state government vehicle purchased to be the “best in class” vehicle available in the year of purchase.

#### **Action 4.1.2 Right-Sizing**

A set of criteria could be established to make sure the vehicle meets the needs of the task it will perform, can use a low GHG fuel and gets a certain MPG for that class of vehicle that it must be.

#### **Action 4.1.3 Increase Use of Cleaner Fuels & Advanced Technologies**

The state should establish a policy that requires adoption in NH fleets and by NH government, as the technology becomes available, of advanced technologies such as plug-in hybrid vehicles, fuel cell, and full electric vehicles and vehicles capable of operating on alternative and renewable fuels with attention paid to the lifecycle emissions.

#### **Action 4.1.4 State Employee Low Emissions-Per-Mile Vehicle Purchase Program**

Negotiate a bulk discount rate for state employees that purchase vehicles that have a low emissions per mile.

### **Action 4.2 Reduce Emissions from Existing Vehicle Stock**

#### **Action 4.2.1 Reduce diesel particulate emissions through use of retrofit devices in state fleet**

The state should install diesel retrofit equipment on all state-owned diesel vehicles and equipment.

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### **Action 4.2.2 Reduce diesel particulate emissions in state contracts**

The state should also make the installation of diesel retrofit equipment on vehicles and equipment a contract specification on all state contracts (e.g., roads, buildings).

### **Action 4.3 Driver Behavior**

#### **Action 4.3.1 State Vehicle Operation**

Reduce emissions from existing motor vehicles by encouraging fuel efficient driving behavior. The state should establish and implement policies to reduce fuel consumption through efficient vehicle operation that include, but are not limited to: a no-idling policy, and improved driver habits. This would include strictly enforced penalties for speeding violations while in government vehicles.

#### **Action 4.3.2 Maximize Alternative Transportation Utilization**

Reduce emission from the state travel by utilizing alternative/mass transportation for travel to and from conferences and meetings.

## **GLA Goal 5 - Reduce Fuel Consumption in State Fleet**

### **Action 5.1 Employee Vehicle Miles Traveled Reduction**

The state is a significant employer and should establish policies and programs that enable state employees to reduce the number of vehicle miles traveled.

#### **Action 5.1.1 Commuting Trip Reduction Initiative**

To reduce the emissions associated with the travel to and from work by state employees.

##### **Action 5.1.1.1 Employee Travel Reduction**

The state should institute policies that enable more widespread use of strategies that reduce travel such as telecommuting, the use of flextime, and allowing schedules such as four 10-hour days, or eight 9-hour days.

##### **Action 5.1.1.2 State Leadership in Transportation Management Associations (TMA)**

Take a leadership role in the development and promotion of a Concord area TMA to increase the transportation infrastructure and services available to state employees traveling to and from work.

##### **Action 5.1.1.2 Satellite Offices**

Maximize the use of the state's satellite offices to reduce the number of miles that state employees drive to work each day.

##### **Action 5.1.1.3 State Employee Rideshare**

Develop a Rideshare program, which is specifically designed for state employees, that increases the number of employees participating in car and vanpools and offers a guaranteed ride home.

##### **Action 5.1.1.4 Parking Incentives**

Create a series of incentives which promotes greater VMT reduction or greater fuel economy by providing preferential parking to carpools and low carbon emission vehicles (needs defining) or cash out to staff that do not use parking spaces. Alternatively, employees could be charged for use of parking.

#### **Action 5.1.2 State Business Related Travel**

To reduce the emissions associated with state-related travel, the state could institute policies that enable more widespread use of strategies that reduce travel such as teleconferencing and web-conferencing capacity. The state could promote better trip planning, State business trips should be consolidated whenever possible (e.g. trips to the same place at the same time) and vehicles should be assigned automatically based on fuel efficiency and distance traveled.

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**Action 5.1.3 State Office Locations**

Develop the criteria and administrative capacity to enforce RSA 9B and maximize the walkability of all future state office buildings, whether constructed or leased, by siting the spaces in a manner that is consistent with Smart Growth principles and places state workers in close proximity to existing community centers and transit facilities.