RGHG COMMITTEE
Policy Recommendations

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As of June 15, 2020

Energy Efficiency

2A: THE MONTANA DEPARTMENT OF LABOR AND INDUSTRY (DLI) SHOULD MODERNIZE MONTANA BUILDING ENERGY CODES AND ADMINISTRATIVE PROCESSES TO PROMOTE ENERGY EFFICIENCY AND OTHER CLIMATE BENEFITS IN NEW ~~AND EXISTING~~ BUILDINGS

Description: Building energy codes are an effective way to save energy over the long term. The value of energy efficiency in properly implemented construction standards is universally recognized as the easiest and most cost-effective way to help consumers and businesses save energy and money, make housing and businesses more affordable, and reduce greenhouse gas emissions.

Key Strategies for DLI:

- Support regular adoption of updated International Energy Conservation Code (IECC) codes every 3 years, with amendments appropriate to MT. The adoption process must be accelerated to occur within 12 months of a new code being issued by the International Code Council (ICC). Consider capacity building support to meet accelerated adoption objectives.
- Require that the energy code be considered at the same time as the other codes to avoid the current situation where the energy code lags adoption of other codes.
- Require that all builders operating in the self-certification areas of the state be required to submit, to the Building Codes Bureau, a written statement that a house complies with the state energy code and/or have the appropriate state agency enforce building codes outside of local jurisdictions.
- Modify language regarding energy stretch codes to allow a jurisdiction to require compliance with that local stretch code in their jurisdiction. Explore the possibility of developing a stretch code for the entire state that would be optional for local jurisdiction adoption.
- Investigate the feasibility of requiring energy rating labeling for new home sales and new commercial buildings.

2B: ESTABLISH A GRADUATED ENERGY EFFICIENCY STANDARD, A DEMAND RESPONSE STANDARD, AND AN ENERGY STORAGE STANDARD FOR THE STATE'S INVESTOR OWNED UTILITIES (IOUs)

Description: The rate of energy savings in Montana is quite low, around 0.5% annually. States that are high performing acquire energy efficiency at over 2.0% annually. The acquisition of energy efficiency will reduce the need for electricity generation, reducing GHG emissions. A graduated energy efficiency standard establishes specific targets for energy savings that utilities or non-utility program administrators must meet through customer energy efficiency programs. Demand Response involves reducing power consumption at industrial sites, commercial buildings, homes and other locations to save energy and meet utility peak demands. Energy storage can provide power that can be dispatched to better integrate intermittent resources like renewable energy, but it can also provide management of intermittent demand – helping to flatten demand requirements of the utility and allow the utility to implement voltage regulation and other efforts to improve system efficiency.

Key Strategies:

- Adopt a statutory, or through administrative rule by the PSC, energy efficiency standard at 1% energy savings on an annual basis within 3 years after program implementation, then increase the standard to 1.5% annually for the next 4 years, and to 2% annually thereafter for IOUs.
    - In order to ensure that the utilities are not disincentivized from adopting policies that promote beneficial electrification, e.g., converting from natural gas or propane to electric heat, load growth attributable to these activities would be excluded from total sale volumes and thus would not have any effect in the calculation of energy savings that must be acquired to meet the efficiency standard.
    - The proposal could consider specifying some amount of energy efficiency acquisition targeted at low-income Montanans. Low-income households receive significant benefits from energy efficiency acquisition since low-income customers spend a disproportionately large amount of their income on meeting energy needs.
- Adopt a statutory, or through administrative rule by the PSC, Demand Response Standard that would require the state's IOUs to acquire, within 5 years after implementation, a total of 35 MW of demand response resources, calculated based on each utility's overall system contribution to Montana load.
    - Efforts could focus on 1) Load control for residential and commercial customers (hot water heaters, air conditioning) - where equipment is cycled for short periods of time; 2) Curtailable load for larger commercial/industrial operations – where operators nominate an amount of load to be curtailed when an event is called and 3) Interruptible rate for commercial/industrial operations that can curtail most or all of their load.
- Adopt a statutory, or through administrative rule by the PSC, Energy Storage Standard that would require the state's IOUs to acquire, within 2 years after implementation, a total of 35 MW of energy storage, calculated based on each utility's overall system contribution to Montana load.

NOTE: David Hoffman abstained in voting to advance this recommendation

2C: ADVANCE EFFORTS TO PROMOTE ENERGY EFFICIENCY THROUGH TOOLS LIKE ON-BILL FINANCING

Description: One of the largest barriers to energy efficiency acquisition is the upfront cost to individuals, households, and businesses. To help alleviate this issue, utilities should provide the opportunity for customers to apply for loans that are paid back in installments included in monthly energy bills. On-bill financing is an energy efficiency uptake tool that has been utilized by utilities for decades, yet has failed to gain traction in Montana. Flathead Electric Cooperative is believed to be the only utility in the state providing an on-bill financing option, having alleviated the upfront cost burden for over 500 customers in just eight years. Financing through the USDA's Energy Efficiency and Conservation Loan Program can assist Cooperatives in developing/financing programs.

Key Strategies:

- Utilities and Coops should provide an opportunity for customers throughout Montana to access energy efficiency measures by taking advantage of utility administered on-bill financing programs. Utilities and electric cooperatives should utilize lessons learned from experiences around the country, and explore voluntary partnerships and legislative options to leverage funding and further incentivize adoption of energy efficiency financing opportunities. In addition to traditional on-bill financing which utilizes a 3rd party intermediary such as a bank, utilities should also pursue on-bill repayment and tariffed on-bill financing in order to ensure renters and low-income customers are able to fully taking advantage of these programs.

2D: ADOPT RATE STRATEGIES LIKE DECOUPLING, TIME-OF-USE RATES, INCLINING BLOCK RATES AND/OR PERFORMANCE MEASURES TO FACILITATE ENERGY EFFICIENCY

Description: Decoupling is an approach to better align utility profit incentives with customers' energy service needs. In simple terms, under a decoupling mechanism a utility is assured of being able to recover the revenue that the Commission has authorized it to recover, no more and no less. Should the utility recover less than the authorized amount, rates would increase in order to recover those revenues. On the other hand, should a utility sell more energy than was projected when rates were set and recover more than the

authorized revenue, rates would decrease in order to refund the over collection. The mechanism removes the incentive to maximize energy sales in order to achieve recovery, and thus makes energy efficiency and distributed generation options more attractive to utilities.

Currently, most utility customers in Montana pay the same energy charge no matter when they use the energy (electricity or gas). Under this flat- rate design, the per kilowatt or per therm charge is stagnant, meaning there is no price signal to use energy during non-peak times. In Montana, peak
times usually mean that a utility's generation is fully operational, meaning GHG emitting thermal units are emitting. Furthermore, increases in peak load, lead utilities to build additional natural gas "peaker" units, increasing emissions. Time-of-use (TOU) rates, on the other hand, send price signals to customers to shift load to non-peak times, such as at night or during the middle of the day.

Most Montana utility customers pay the same amount per unit (kwh or therm) regardless of the amount they use. For example, a customer that uses 600 kwh/month pays the same for each kwh as does a customer that uses 2,500 kwh per month. As such, there is no price signal to conserve energy or use the energy more efficiently. To address this issue and encourage energy efficiency and conservation, utilities and co-ops should consider adopting Inclining Block Rates (IBR). Utilities utilizing this rate structure encourage large users to reduce their energy usage through higher prices for energy consumed within the higher blocks.

Performance based measures change the business model for investor owned utilities (IOUs) operating in Montana, such that rate of return for the utility is calculated based on performance against certain pre- defined metrics rather than only spending or costs. For example, metrics could include environmental impact, mitigation of climate and environmental risks and investment risk, reliability and availability, safety, conditions for connection, social obligation, and ratepayer satisfaction. In the UK, regulated utilities receive a profit based on the RIIO Model, where Revenue= Incentives + Innovation + Outputs.

Key Strategies:

- Work with the PSC, IOUs, rural electric cooperatives and other stakeholders to advance proposals for Decoupling, TOU Rates, inclining block rates and/or performance measures.
- Consider implementing a three-tiered TOU pricing rate design, being sensitive to the specific needs and circumstances of low-income customers. The first and cheapest tier – the low usage times – should be priced below the "flat rate" charge (e.g. $0.06/kwh) to encourage customers to shift load to these times. The second tier – average usage times – should be priced somewhere near the "flat rate" charge (e.g. $0.11/kwh). Finally, the third tier – peak times – should be appropriately priced to send a proper signal that customers should only use energy essential to home/business operation (e.g. $0.16/kwh). Committee members wish to emphasize that TOU rates will not be applicable to large industrial, agriculture, or large irrigators who already operate under

demand charges.

2E: SUPPORT PROGRAMS TO ADVANCE COMMERCIAL ENERGY AUDITS

Description: In-depth energy audits are necessary for businesses, schools, government agencies, and communities to discern the appropriate energy conservation and renewable energy measures available to them. Previous Montana programs of this scope include the Montana Resource Efficiency Program and the Energy Efficiency Program. The Montana Resource Efficiency Program has a proven track record of success assisting 188 businesses and governments and authoring 48 in-depth audit reports. Energy bill savings amounted to $10,018,409, from 131,153,591 kWh and 6,766,218,000 Btu in energy savings.

Key Strategies:

- Explore budget resources through the legislature to support Commercial Energy Audits.

2F: THE ~~LEGISLATIVE~~ LEGISLATURE SHOULD EVALUATE ~~AND UPDATE~~ THE UNIVERSAL SYSTEM BENEFITS PROGRAM FUNDING MECHANISM ~~FORMULA~~ FOR ELECTRIC CUSTOMERS

Description: In 1997, Montana's energy utilities were restructured, which deregulated the supply of electricity and natural gas. At the time, it was acknowledged there were several activities that were undertaken by the state's utilities which provided societal benefits that could be negatively affected by deregulation. To ensure these activities continued in the future, the legislature established a universal system benefits (USB) program and approved a USB charge to be added to natural gas and electric utility bills of all utility customers. These spending activities are annually reported and many utilities consistently exceed minimum USB spending requirements.

There are differences between natural gas and electric USB programs, but both programs provide funding support for three common activities: cost-effective local energy conservation, low-income energy bill discounts, and weatherization activities. Electric USB charges also fund energy research and development, renewable energy development, and market transformation programs. Natural gas USB funding is based on 1.12 % of the utility's annual natural gas revenues from the previous year. Electric USB collections are based on 2.4 % of the utilities 1995 revenues. Over the last 20 years, there has been a decline in the effective value of electric USB funds. This is a narrowly focused recommendation on the electric USB funding formula ~~and~~ but ~~not~~ on USB programs, particularly the low income energy programs which are so critical for low income electric customers.

Key Strategies:

- The Council recommends the Legislature evaluate ~~and update~~ the electric USB

funding mechanism ~~formula~~ that determines overall annual contributions to the USB program.

NEW Recommendation: MOBILE HOMES

Many Montanans still occupy pre-1976 mobile homes, considered to be among the least energy efficient housing stocks in the country. Low-income Montanans, who are least able to afford energy services, reside in these units. Accordingly, replacing pre-1976 mobile homes with newer mobile homes would not only reduce greenhouse gas emissions but would reduce low-income Montanans energy bills and improve their lives.

Key Strategies:

- The executive branch of state government should convene a stakeholder group charged with taking an inventory of older, energy inefficient, and unhealthy mobile homes and developing a mobile home replacement program to meet both energy efficiency and environmental justice goals.

NEW RECOMMENDATION: GRID-INTEGRATED WATER HEATERS

Grid-interactive electric water heaters can assist with load control. By shifting water heating load from morning and evening to mid-day and overnight water heat energy requirements can be served more economically while still meeting customer needs during peak use times. Water heaters can also be controlled on a minute-to-minute basis to provide voltage support and frequency regulation service to the grid at a much lower cost than generating units or batteries.

Key Strategies:

- The Department of Environmental Quality, working with regional entities, such as the national laboratories, the Bonneville Power Administration, and the Northwest Energy Efficiency Alliance, should develop pilot programs in the service territories of Montana utilities to deploy and test grid interactive water heaters to evaluate performance, energy savings, and their role in system stability and reliability.

NEW Recommendation: DIFFICULT TO QUANTIFY NON-ENERGY BENEFITS IN EE CALCUTIONS

Congress recognized difficult to quantify non-energy benefits in the Northwest Power Act of 1980, requiring the Northwest Power and Conservation Council and BPA utilize a 10% adder in cost-effectiveness calculations. As a result, western Montana co-ops, as customers of BPA, benefit from the 10% adder. The law applies to all utilities in the pacific northwest. Montana-Dakota utilities has a 15% adder included in PSC administrative rule.

NorthWestern energy utilized a 10% adder, citing the NorthWest Power Act, but abruptly stopped several years ago, at the same time that the utility slashed its energy efficiency acquisition goals.

Cost-effectiveness calculations are a crucial part of procuring energy efficiency as a resource. Utilities must demonstrate that efficiency is cheaper than the cheapest alternative resource in order to receive cost-recovery and/or a rate of return on their investments. Theoretically, both costs and benefits are included in the cost-effectiveness calculation; however, many benefits are not included, leading to skewed outcomes limiting efficiency acquisition. These include health benefits, benefits to water, environmental benefits, compounded economic benefits, etc.

Key Strategies:

- In an effort the more accurately calculate the full benefits of energy efficiency, all utilities and co-ops should include a non-energy benefit adder in cost-effectiveness calculations. The specific number should be left up to individual utilities, but should be no less than 10% as described in the NorthWest Power Act. The result would mean that any measure or program achieving a 0.9 or above (for 10% adder) cost-effectiveness ratio would be deemed to be cost effective.

NEW RECOMMENDATION: ENERGY EFFICIENCY AT RENTAL UNITS

Installing energy efficiency at rental units is challenging because of the split in incentives that exists between the owner of the rental unit and the occupant of the unit. Specifically, the problem is that the cost of capital improvements that yield energy savings are incurred by the owner of the property but the benefits of the energy savings in the form of lower costs of energy and unit comfort and livability advantage the occupant of the unit. Consequently, owners have no incentive to invest in energy efficiency, meaning that the benefits to the owner, in terms of marketing the unit, to the tenant, in terms of reduced cost of living in the unit and comfort, and to society, in terms of reduced emissions, are not realized.

Key Strategies:

- The Governor shall establish a task force examining existing energy efficiency efforts specific to rental units and ways to improve energy efficiency acquisition at rental units. The task force shall be comprised of stakeholders, including investor owned electric and natural gas utilities, electric cooperatives, local government, energy efficiency providers, and owners of rental units and tenants.

NEW RECOMMENDATION: ELECTRIC COOPERATIVE BENEFICIAL ELECTRIFICATION EFFORTS

Beneficial electrification means to substitute electricity as an energy source in place of applications that rely on fossil fuels. So, for example, switching to electric vehicles instead of vehicles that utilize petroleum products or utilizing electric space heat instead of natural gas or propane. This approach limits uncontrolled greenhouse gas emissions from many sources and instead, by using electricity from clean energy sources, allows for these various applications to lower, and potentially to zero out, greenhouse gas emissions. The electric cooperatives serve a significant number of customers in

Montana and thus will be critical if Montana is to achieve emission reductions.

Key Strategies:

- The Montana's Electric Cooperatives Association and its member cooperatives should consider establishing a beneficial electrification initiative in order to save customers money and improve their and their communities' way of life, enhance grid stability and reliability, and reduce environmental impacts.

NEW RECOMMENDATION: HEAT PUMPS

Heat Pumps are increasingly being used in various parts of the country. As the technology advances, the cost of the technology continues to decline. Heat pumps take energy in the form of heat and by a mechanical process produce additional heat. Thus, heat pumps can be used to heat hot water as well as meet space heating needs. As such, they are another method of reducing emissions associated with the use of natural gas for these purposes. Since the technology is relatively new, there are legitimate questions as to its efficacy in Montana. Additional study is needed.

Key Strategies:

- The State should commission a study, to be prepared by an entity familiar with the subject, examining the efficacy of air source and geothermal heat pump in Montana. Working with electric utilities, the study should field test applications of heat pump technology in a variety of climatic regimes, undertake an economic analysis, and make recommendations as to deployment of the technology, if the report determines the technology has potential value in the state.

NEW RECOMMENDATION: APPLICANCE EFFICIENCY STANDARDS

Many states have adopted appliance efficiency standards. Standards require products, such as refrigerators or air conditioners, to meet specific minimum efficiency requirements thereby reducing energy use, which reduces emissions and, also saves consumers money. Equally important, the existence of standard drives manufacturers to focus incorporating energy-efficient technologies into their products at the least cost and hastening the development of innovations that bring improved performance. While Montana is a small state that will not drive the market, Montana consumers should not be deprived of the advantages that will be produced as a result of ensuring their appliances meet a minimum level of efficiency performance.

Key Strategies:

- The State should enact legislation that adopts minimum energy and water efficiency standards for a variety of products sold in the state. The legislation should use as a template the "Model Act for Establishing State Appliance and Equipment Energy and Water Efficiency Standards" issued by the Appliance Standards Awareness Project and the American Council for an Energy Efficient Economy.

NEW RECOMMENDATION: Form a Microgrid Stakeholder Advisory Group to investigate the increased use of microgrids in Montana

The Department of Energy defines microgrids as "localized grids that can disconnect from the traditional grid to operate autonomously." DOE goes on to note that "because they are able to operate while the main grid is down, microgrids can strengthen grid resilience and help mitigate grid disturbances as well as function as a grid resource for faster system response and recovery." Further, microgrids can provide an opportunity to deploy more distributed generation, especially with storage technology, and can more efficiently use those technologies. The development of microgrids is still relatively new. As of January 2020, Wood Mackenzie was tracking just over 2,400 operational microgrid projects across the United States. However, Montana itself is home to NorthWestern Energy's Beck Hill Rural Microgrid Project. A group of energy stakeholders should be convened in order to further investigate the increased use of microgrids in Montana.

Key strategies:

- The Montana Energy Office within DEQ ~~Legislature~~ should ~~oversee~~ establish a Microgrid Stakeholder Advisory Group~~, facilitated by the Montana Energy Office,~~ to investigate the increased use of microgrids in Montana in order to identify impacts to energy consumers and energy providers, as well as technical barriers impacting development, and report its findings to ETIC.

Renewable Energy

2G: ENCOURAGE EXPANDED COMMUNITY SOLAR DEVELOPMENT AND ENACT POLICY TO ENABLE COMMUNITY SOLAR FOR INVESTOR OWNED UTILITIES

Description: Community solar programs allow households, businesses, and other energy customers the opportunity to subscribe to one or multiple small portions of a large solar array, typically owned by an energy provider. Community solar can benefit many Montanans by making it possible for them to afford investments in renewable energy without having to pay the high up-front cost of owning a renewable energy generator. Maintenance costs are also reduced because these costs are shared by participating individual consumers. Under current property tax law, after expiration of the five-year tax holiday, these community solar arrays are treated as utility property for tax purposes.

Community solar provides access for individuals, households, and businesses that may not otherwise be able to install a distributed generation system on-site (e.g. renters, buildings with shaded roofs, etc.). Community solar allows the utility to control the siting of the array, which can provide more efficient solar production and more efficient grid interconnection. Community solar subscribers can help finance projects, lessening burden on the developer.

Key Strategies:

- The Council recommends the Legislature enact policy to extend or make permanent the current five-year property tax holiday for community solar energy development by electric utilities (MCA 15-6-225 “Small Electrical Generation Equipment Exemption”).
- The Council recommends that the Legislature enact policy to enable shared solar for investor-owned utilities.

2H: PROVIDE INCENTIVES FOR SOLAR-READY AND SOLAR-INTEGRATED DESIGN AND BUILDING

Description: In a report titled, “Solar Ready: An Overview of Implementation Practices,” National Renewable Energy Laboratory experts define a solar ready building as one that is engineered and designed for solar installation, even if the solar installation does not happen at the time of construction. The report states that creating a solar ready structure improves the cost effectiveness of solar when pursued later, which eliminates barriers to future solar applications and facilitates market growth.
Examples provided in the report demonstrate significant savings if solar-ready measures are implemented during design and construction versus if those measures must be taken during solar installation. In Montana, solar-ready design incentives should focus on two types of buildings: 1) residential (single or multi-family structures) and 2) small buildings designed for multi-family housing, commercial use, or mixed-use applications. This second group of buildings typically have flat roofs and are excellent candidates for solar

Key Strategies:

- The Council recommends that the Montana Legislature enact legislation that provides incentives to encourage solar-ready design for new buildings in Montana.
- The Council recommends the Montana Energy Office and the Montana Department of Labor & Industry collaborate to provide solar-ready design guidance for residential and commercial building developers.
- The Council recommends the Montana Department of Labor & Industry’s Building Codes Program (BCP) adopt the IECC 2015 energy code and specifically include Appendix RB which provides Solar-Ready Provision for Detached One- and Two-family dwellings, and multiple single-family dwellings.

2I: STUDY THE FEASIBILITY OF ENCOURAGING GREATER UTILITY SCALE RENEWABLE ENERGY DEVELOPMENT THROUGH REDUCING PROPERTY TAXES ON NEW RENEWABLE ENERGY IN MONTANA

Description: Montana currently has by far the highest taxes on renewable energy in the region compared to North Dakota, South Dakota and Minnesota. North Dakota’s taxes on a 150 MW generator, for example, are only ¼ the amount of taxes on the same-sized generator developed in Montana. Taxes in South Dakota and Minnesota are only slightly higher than those in North

Dakota.

Key Strategies:

- The Council recommends that the Revenue Interim Committee of the Montana Legislature conduct independent research to compare taxation across states and renewable energy projects to determine if rates should be adjusted for new projects. Committee members emphasize that any proposed adjustments must fully consider revenue impacts.

2J: ADVANCING THE DEPLOYMENT OF ENERGY STORAGE PROJECTS IN MONTANA

Description: Nationally, energy storage is increasingly being utilized by utilities, other energy suppliers, and customers. Energy storage has many applications and roles, including addressing utility peak needs requirements, enhancing system reliability, and renewable resource integration. Presently, however, energy storage development in Montana is hampered by, among other things, a lack of acceptance and awareness of its potential uses and value.

Key Strategies:

- The Department of Environmental Quality should, together with other executive branch agencies, the Montana Public Service Commission, and electric utilities, host a symposium on energy storage in order to explore new storage technologies and their potential application in Montana and identify possible recommendations and next steps.

2K: ADVANCE EFFORTS TO TAKE ADVANTAGE OF A COORDINATED WESTERN ELECTRICITY MARKET

Description: The Western United State electric grid is comprised of 38 balancing areas that create economic, contractual and practical obstacles to buying and selling electricity creating extensive market inefficiencies. A more integrated electricity market in the west would allow load serving entities to better manage their loads and optimize production, delivery, and use of the low cost renewable energy that the western U.S. has in abundance, resulting in cost savings for consumers. Development of a regional electricity market has special salience in Montana, which has significant renewable resource potential, the development of which is presently hampered as a result of the present balkanized system.

Key Strategy:

- The Governor and the legislature, along with the state's electric utilities, should express their support for a western regional electricity market designed, among other things, to provide transparency and equitable treatment and opportunities for cost savings for all market participants, and should actively work with other

states and regional utilities to develop such a market.

NEW RECOMMENDATION: CARBON PRICING

The Montana Climate Solutions Council acknowledges that a carbon pricing mechanism—if structured thoughtfully and with appropriate stakeholder input—has the ability to both lower emissions (through either a cap on emissions, or through a price on carbon), as well as generate revenues that can be invested back into the economy. The most effective and equitable approach on carbon pricing would be for Congress to enact national legislation with input from impacted groups. To that end, Montana should track and influence the development of federal legislation through its Congressional delegation and through its membership in the U.S. Climate Alliance (and other association memberships, e.g. National Governors' Association, the Western Governors' Association, Environmental Council of the States, etc.).

Key Strategies:

- In the absence of a federal approach to putting a price on carbon, the Council encourages the Governor to direct the appropriate state agencies, including DEQ, Department of Revenue, DNRC, MDT, Department of Commerce, Department of Labor, and the Department of Agriculture, to explore the options, costs and benefits, and feasibility for Montana to join other states in an existing or future regional carbon market. As a starting point, Montana should conduct research and analysis of existing regional markets and should also identify which other states may be interested in working together on some form of a carbon pricing policy. This will inform the decision of whether, and with whom, Montana should collaborate on the development of such policies.
- With either a federal approach, or regional approach, Montana should consider both the mechanism for pricing carbon (e.g., fee vs. cap), the efficacy of reducing carbon emissions, and how revenues generated from carbon pricing will be invested back into the economy (e.g., through investments such as innovative energy technology, energy efficiency, and building climate resilience) and used to mitigate the economic impacts on low-income residents.

(NOTE: This advanced out of the GHG Committee on a 7-3 vote: yes=Caitlin, Kathy, Chuck, Diego, Andrew, Tracy, Shaun; Nos=Gary, David, Alan)

NEW RECOMMENDATION: SOCIAL COST OF CARBON

Montana does not currently evaluate the social cost of carbon (SCC) or carbon equivalent in integrated resource planning processes, setting and reviewing climate-related targets, or other regulatory or rule-making processes.

The social cost of carbon (along with the social cost of methane and nitrous oxide) is meant to estimate long-term damages associated with various increments of emissions and better account for environmental and social externalities in decision making conversations and planning processes regarding the "cost" of various resources. It is "a measure, in dollars, of the long-term damage done by a ton of carbon dioxide (CO2) emissions in a given year" (EPA 2017).

The Fifth Intergovernmental Panel on Climate Change Report noted that the current federal estimates for the social cost of carbon do not include all relevant damages associated with climate change, and due to a number of factors, will almost inevitably fall short of representing the true cost of emissions (EPA 2017). However, while the social cost of carbon is not a silver bullet in addressing climate change, it does help internalize a number of the often-externalized environmental, health, and property damages associated with climate change in planning processes heavily centered on market analysis.

(NOTE: This advanced out of the GHG Committee on a 6-3-1 vote: yes=Caitlin, Kathy, Chuck, Diego, , Tracy, Shaun; Nos=Gary, David, Alan; Abstain=Andrew)

NEW RECOMMENDATION: CLEAN ENERGY STANDARD (CES)

The State should adopt a clean energy standard, which is a technology-neutral mechanism that requires that a certain percentage of utility sales be met through "clean" zero- or low-carbon resources, such as renewables including existing hydroelectric generation, nuclear energy, coal or natural gas generation with carbon capture technology, and other forms of generation. Specifically, by 2025, sixty percent of a utility's total sales would come from "clean energy," by 2035, eighty percent, and by 2050, 100 percent. Compliance with the standard by electric cooperatives would not apply on an individual cooperative basis but rather by aggregating total sales and generation of all the State's electric cooperatives.

Note: there are many ~~several~~ design features of a clean energy standard ~~not discussed above~~. These include: more precisely defining what constitutes "clean" generation~~,~~ (for example, Washington limits biomass fuel to certain kinds; whether to establish a credit system based on emission rates, if certain clean energy approaches should be favored or disfavored based on type and timing, for example, Nevada affords a ten percent credit for energy efficiency measures achieved by 2024), if cost containment provisions, in the form of an alternative compliance payment or cost off-ramps is advisable, both of which work to keep the cost of compliance within a certain range and, thus, seek to balance concern over impacts to customers with the goals of the standard, ~~whether to treat the electric cooperatives on an individual or collective basis~~, and determining the consequences if the standard is not met. ~~These have not been discussed because it is the overall principle as enunciated by the recommendation that is the most important thing.~~

(NOTE: A proposed amendment to consider cost and the availability of technology failed on 4-5 vote: yes—Alan, Gary, David, Shaun; No—Caitlin, Chuck, Diego, Andrew, Kathy)

(NOTE: This recommendation advanced out of the GHG Committee on a 5-3-1 vote: yes—Chuck, Diego, Andrew, Kathy, Shaun; No—Alan, Gary, David; Abstain—Caitlin)

Transportation

2L: ADOPT LOW EMISSION VEHICLE (LEV) AND ZERO EMISSION VEHICLE (ZEV) STANDARDS

Description: Fourteen states have adopted Low Emission Vehicle standards and two other states, Minnesota and New Mexico, are in the process of adopting the standards, which are broadly supported by the auto industry. California adopted the first Low-Emission Vehicle (LEV) regulations in 1990, requiring automobile manufacturers to introduce progressively cleaner light- and medium-duty vehicles with more durable emission. Zero Emission Vehicle (ZEV) programs require automakers to sell electric cars and trucks. The exact number of vehicles is linked to the automaker's overall gasoline and diesel sales within the state.

Key Strategies:

- DEQ should undertake a rule-making process (or pursue legislation as appropriate) to adopt low-emission vehicle emission standards and Zero Emission Vehicle standards by the fall of 2020.

NOTE: This passed out of the GHG Committee on a 6-2 vote (Support—Chuck, Caitlin, Kathy, Andrew, Tracy, Shaun; Oppose—Alan, Gary)

2N: IMPROVE STATEWIDE TRANSPORTATION MANAGEMENT TO FOSTER ALTERNATIVES AND SUPPORT THE NEEDS OF COMMUNITIES

Description: Transportation related Greenhouse Gas Emissions occur not just because our fleet uses fossil fuels, but also because of the nature of our overall transportation system. Montanan's have the 10th highest reliance on personal vehicles of any state in the nation, reflecting our geographic range, but also limited integrated transportation and growth planning and transportation alternatives.

Key Strategies:

- The Montana Department of Transportation should assemble a broad-based stakeholder group, including transportation consultants and experts from outside of Montana, to consider and evaluate the Department's transportation planning and operational practices in light of the need to reduce greenhouse gas emissions and the importance of and benefits from developing transportation efficient communities.
- The Montana Department of Transportation should build, or arrange to have built, and host a ride sharing internet tool that will enable drivers and riders to connect with each other so as to reduce vehicle miles travelled and costs for Montanans while also lessening the burden on existing transportation infrastructure.
- The Montana Department of Transportation, working with local governments, should direct additional resources towards planning for and the development of expanded bike infrastructure.

- The Department of Labor should prepare and make available a manual on remote working practices and should assist employers that wish to institute remote work opportunities for their employees

NEW RECOMMENDATION: PASSENGER RAIL

Background:

Public transportation across the state of Montana is limited, with few affordable options for intercity travel across the state. Throughout the 20th century, southern Montana saw passenger rail service by way of Northern Pacific's North Coast Limited and the Chicago, Milwaukee, and St. Paul's Hiawatha trains. With the cessation of private rail service in 1971 and the creation of Amtrak, the North Coast Hiawatha was established and ran until 1979, when, during a period of retrenchment, Montana lost the southern route and only retained the Empire Builder along the Hi-Line. Unfortunately, the majority of the state, and the major population centers of the state, are not connected by rail or even by regular bus routes. Transportation accounts for a significant percentage of greenhouse gas emissions in urban areas, and there is tremendous opportunity to reduce those emissions by reducing single-occupant vehicle trips. A cohesive intercity public transportation system would both mitigate fossil fuel use by decreasing the necessity of car travel across the state and would increase equitable access to travel options for those not able to afford car ownership or with other barriers to driving. More regional rail connectivity can help reduce the need for air travel as well (more about GHG reduction benefits here and here). Passenger rail cars could further reduce Montana's greenhouse gas emissions if electrified or powered by hydrogen.

The last study on the feasibility of reinstating passenger rail in Montana was conducted in 2010. It is likely that many of the estimates of cost and even the state of the current infrastructure need to be reevaluated. Additionally, the previous studies did not take into account the social cost of emitting carbon and the need to reduce GHG emissions. Another barrier to reinstating passenger rail is the lack of a governance structure, like a rail authority, to lobby for and actively pursue restoration/expansion of passenger rail service. Rail authorities provide the governance structure and institutional framework for engaging state, federal, and private sector partners to plan and implement restored passenger rail service throughout the region.

Key Strategies:

1) The State of Montana should develop a passenger rail authority modeled after passenger rail authorities in other states. To begin with, the Governor could direct the Department of Transportation to coordinate with and support the county officials developing a multi-county Big Sky Passenger Rail Authority.

2) The Governor and Montana's congressional delegation should advocate for the creation of a regional, multi-state passenger rail commission (like the Southern Rail Commission) that allows Montana to create connectivity with other states and tap into federal resources.

3) The Department of Transportation should conduct an updated feasibility study of restored passenger rail service through southern Montana and conduct an impact analysis which takes into account anticipated reductions in greenhouse gas emissions.

4) The Governor should establish a Blue Ribbon committee to examine the issue and investigate how Montana can prioritize passenger rail and expanded public bus service as a part of the state's multi-modal approach to mitigating climate change.

Ag, Forestry, Industrial, O&G, CCS

2O: IMPROVE GREENHOUSE GAS EMISSIONS AND CARBON SEQUESTRATION INVENTORY AND ACCOUNTING SPANNING NON-ELECTRIC AND TRANSPORTATION SECTORS ACROSS MONTANA'S ECONOMY

Description: Presently, the state lacks a comprehensive inventory or estimates of greenhouse gas sources and sinks spanning other critical sectors of the economy, including industrial sources, oil and gas production and agriculture, forestry and wood products. These estimates and inventories are critical to understanding economy wide strategies to reduce emissions and boost the capacity of carbon storage in healthy soils, forests and in wood products.

Key Strategies:

- DEQ, in consultation with other appropriate agencies, including Department of Agriculture and the Board of Oil & Gas Conservation, should develop greenhouse gas emissions and sink estimates for key sectors of Montana's economy and land use.
- The GHG emissions reporting program should be developed thru DEQ rulemaking to encourage facilities and other industrial, institutional and commercial operations that produce more than 25,000 metric tons of CO2e to annually report GHG emissions. This recommendation would allow for developing a summary report of existing facilities currently reporting to the GHGRP and also incorporate other facilities subject to 40 CFR 63 Part 98 who are not reporting.
- Explore partnerships to reduce emissions/enhance carbon storage spanning the sectors.
    - ~~MT DEQ and MT Board of Oil and Gas Conservation should meet with oil and gas operators at a minimum of once annually to promote best management practices such as leak detection and repair, high-bleed pneumatic controllers, and the manual liquids unloading process. Work toward educating well and pipeline operators on methane gas capture and reduction in fugitive emissions.~~
    - ~~CThe Montana Board of Oil and Gas Conservation should continue use of their Damage Mitigation Account to properly plug orphaned (abandoned) oil and gas wells for which there is no identifiable well operator. This program works toward eliminating potential fugitive emissions of methane gas along with addressing other~~

~~issues. BOGC may have to adjust their environmental ranking criteria to move wells with greater potential to emit methane to a higher priority. Steps should be taken to ensure the Damage Mitigation Account is funded as required by statute to enable proper administration of the BOGC damage mitigation program. No general fund monies are contributed to the BOGC Damage Mitigation Account. The Legislature should fund the orphan well cleanup program through the Resource Development Grant Program. Federal economic stimulus packages should include the use of stimulus funds for orphan well cleanup projects.~~

- In forestry and agriculture, integrate strategies with voluntary and incentive-driven approaches, including potential carbon markets, as outlined in Chapter 1. Consider use of widely available tools from the USDA for estimating greenhouse gas emissions and sinks, including tools like COMET-FARM and COMET PLANNER that allow for farm-scale and regional estimations of the benefits of conservation practices for carbon management and reduced emissions.

- ~~The Board of Oil & Gas Conservation, working in coordination with industry, should conduct a study of non-CO2 based greenhouse gas emissions in Montana, including methane, utilizing recent advances in identifying releases, spanning diverse sources. Study other methane emission sources such as solid waste disposal facilities, agricultural operations, and hydropower sources in addition to oil and gas.~~

NEW RECOMMENDATION: FOOD WASTE/FOOD RESCUE/LOCAL FOODS

Description: Many people believe local food systems are more energy efficient than conventional production systems. Local food systems can reduce "food miles" and transportation costs, offering significant energy savings by reducing fossil fuel energy use and GHG emissions. Although local food systems can reduce transportation distances for food, studies of food transportation energy use and GHG emissions do not always agree on whether local food systems are more energy efficient primarily because of the great variability among local foods markets. In some cases, local and regional food systems are more efficient and distance food travels to the consumer is an important factor in determining environmental impacts. Others have found that distance is not an adequate measure of impact because transportation accounts for a relatively small share of energy use and emissions in the food system. The vast majority of energy used in the U.S. food system goes to processing, packaging, transporting, storing, and preparing food.

Local food systems do bring other benefits to our communities. Many people feel that consumers also benefit from fresher, better-tasting, and more nutritious food, while more food dollars stay within rural communities. Spending money in the local community rather than sending it far away can be economically valuable, and having a vibrant local-food system creates community resiliency in the event of unexpected occurrences such as what we are experiencing with the COVID 19 pandemic. For example, many meat packing facilities across the country are currently shut down because of the pandemic leaving some producers with few options for processing their beef, hogs and lamb. If Montana had more regional meat processing plants, producers would have more options and Montana would have more jobs. However, although bringing in more feeding and processing capacity could reduce

transportation emissions and have some economic or social benefits, doing so could increase GHG emissions as well.

Food waste is a serious problem in the United States- between 30 to 40 percent of the United States' food supply is wasted. When food is wasted, resources like energy and water it takes to grow, harvest, transport, and package it is also wasted. Breakdown of food in landfills also produces methane, a potent GHG. About an 11% reduction of all the greenhouse gas emissions that come from the food system could be achieved if food waste was mitigated. Reducing the impacts of food waste could be achieved through composting programs and programs that funnel unused food to people in need.

Key Strategies:

- The Montana Department of Agriculture should establish a Food Policy Council that will establish goals, strategies and policy recommendations to address opportunities and barriers to reducing GHG emissions related to our food systems and to address waste food generated within the state. The Food Council should include stakeholder representatives from Montana producers, farmer market managers, farm to school programs, food hubs, retail grocers, food banks and on-the-ground experts in the areas of energy efficiencies, composting and solid waste disposal.
- The Department of Agriculture should set a goal of beginning to implement recommendations from the Food Policy Council within 12 months of receiving the Food Policy Council's report, including pilot projects as appropriate.

NEW RECOMMENDATION: SOLID WASTE, RECYCLING AND COMPOSTING

There are direct and substantial links between greenhouse gas emissions and solid waste management, recycling, and composting. Waste reduction, recycling, and composting is a critical part of reducing emissions in several ways:

- Energy consumption. Recycling saves energy. Producing goods from recycled materials typically require much less energy than making goods from virgin materials. Waste prevention is even more effective. Less energy is needed to extract, transport, and process raw materials and to manufacture products when a product's life is extended, people reuse things, or when less material is used to make and package the product.
- Incinerators. Diverting certain materials from incinerators through waste prevention and recycling reduces greenhouse gas emissions to the atmosphere in addition to other pollutants.
- Methane emissions from landfills. Waste prevention and recycling, including composting to divert organic waste from landfills, reduces the methane released when these materials decompose.
- Increased storage of carbon in trees. Forests take large amounts of carbon dioxide out of the atmosphere and store it in wood, in a process called carbon sequestration. Waste prevention

and recycling of paper products can leave more trees standing in the forest, continuing to absorb carbon dioxide from the atmosphere.

The U.S. EPA estimates that increasing our national recycling rate from its current level of 27 percent to 35 percent would reduce greenhouse gas emissions by 11.4 million metric tons of carbon equivalent (MTCE, the basic unit of measure for greenhouse gases) over landfilling the same material. Waste prevention also makes an important difference: By cutting the amount of waste we generate by just 5 percent; we could reduce greenhouse gas emissions by another 10.2 million MTCE. Together, these levels of recycling and waste prevention slash emissions by more than 20 million MTCE-an amount equal to the average annual emissions from the electricity consumption of roughly 12 million households.

In addition, landfilling food waste rather than composting it results in the loss of nutrients; a critical aspect for Montana's agriculture. Burying food waste and other organics, such as wood and paper waste, contributes to the production of leachate that must be treated for methane - one of the most potent greenhouse gases. Food waste is a significate portion of the waste stream nationally and was shown to constitute 20% of our state's waste stream in Montana's 2017 Solid Waste Diversion Survey. Composting represents tangible, local action to reduce greenhouse gases. Substantial reductions in greenhouse gases can be further gained by diverting methane-emitting feedstocks derived from municipal treatment centers, lagoons, and agriculture from landfills to composting operations.

Key Strategies:

- The Montana Department of Environmental Quality should establish an Advisory Group that will make recommendations for setting goals and establishing strategies to address GHG emissions related to municipal solid waste generated within the state, through increased recycling and composting, and by diverting the amount of solid waste going to landfills. The Advisory Group should include representative from the Montana Association of Cities & Towns, the Montana Association of Counties, Montana Chamber of Commerce, and on-the-ground experts in the areas of solid waste, recycling, and composting.
- The Department of Environmental Quality should set a goal of beginning to implement recommendations from the Advisory Group within 12 months of receiving the Advisory Group's report, including pilot projects as appropriate.

2P: ADVANCE EFFORTS TO DEVELOP AND DEPLOY CARBON CAPTURE AND STORAGE TECHNOLOGIES (CCS)

Description: Even as Montana diversifies its energy portfolio, fossil fuels are expected to meet a portion of the energy demand for several decades. Accelerating deployment of carbon capture and storage (CCS) technology is essential to reduce emissions from these power plants, and to support other needs such as renewable fuel production central to meeting the net-neutral goal. Moreover, more than half of the models cited in the Intergovernmental Panel on Climate Change's Fifth Assessment Report required carbon capture for a goal of staying within 2 degrees Celsius of warming from pre-industrial days. For models without carbon capture, emissions reduction costs rose 138 percent. (C2ES)

Governor Bullock co-founded multiple regional and national initiatives supporting carbon capture, including the State Carbon Capture Work Group, the Governors' Partnership for Carbon Capture and the Regional Carbon Capture Deployment Initiative. Governor Bullock also entered a Carbon Capture MOU in 2018 along with the Canadian Province of Saskatchewan that includes participation with the States of North Dakota and Wyoming.

Key Strategies:

- DEQ should consider seeking primacy for Class VI deep injection wells. Class VI wells are used to inject carbon dioxide (CO2) into deep rock formations. This long-term underground storage is called geologic sequestration (GS). Geologic sequestration refers to technologies to reduce CO2 emissions to the atmosphere and mitigate climate change. EPA has finalized requirements for GS, including the development of a new class of wells, Class VI, under the authority of the Safe Drinking Water Act's Underground Injection Control program. These requirements, also known as the Class VI rule, are designed to protect underground sources of drinking water. North Dakota is the only state with primary enforcement authority for UIC Class VI wells. EPA directly implements the Class VI program in all other states, territories, and tribes. State management of the program could expedite permitting while maintaining appropriate safeguards to water supplies. MT Board of Oil and Gas Conservation already has statutory authority to regulate class VI disposal wells. No application for primacy currently exists.
- Identify federal and private sector partners and funding to advance Carbon Capture and Storage in Montana.

2Q: INCREASE THE ALLOWABLE SYSTEMS SIZE FOR DISTRIBUTED GENERATION SYSTEMS

Description: The current system size cap for small-scale generation interconnecting to the grid is restrictive for entities like commercial buildings, schools, libraries, and private businesses. The current cap of 50kW was passed in 1999 and has not been updated since. Meanwhile, solar technology has become more efficient and less costly. Increasing the allowable system size will allow users to meet more of their energy needs with solar, wind, micro-hydro, and other eligible technologies.

Key Strategy:

- The Montana Legislature should evaluate and institute a new cap for distributed energy systems.

NOTE: This passed out of the GHG Committee on a 6-3 vote (Support—Chuck, Caitlin, Kathy, Andrew, Tracy, Shaun; Oppose—Alan, Gary, David)

State Agencies

NEW RECOMMENDATION: IMPLEMENT NET ZERO ENERGY BUILDING STRATEGIES

Net Zero Energy (NZE) buildings tackle climate change mitigation and adaption simultaneously. NZE strategies and goals overlap with the Climate Change Adaptation and Innovation/Transitions Committees. In Montana, heating and cooling account for most of the energy used in most buildings. NZE buildings are designed to significantly reduce *all* of a building's energy use and thus their greenhouse gas emissions. Many above-code building programs provide best practices, strategies, and require third-party certification. The State of Montana can adopt one of the existing programs for all state-owned new construction or existing building retrofits.

NZE adoption has several barriers. There is a lack of awareness of the concept and its benefits. Further, there is a lack of educated customers and trained professionals. There exists a chicken and egg issue: customers building new buildings need to know that NZE and NZE-ready is an option and ask for it. And, Montana's architects and builders need to know how to design and build NZE so they can be hired. There are numerous architects and builders across the U.S. with the knowledge, expertise, and experience required, but Montana will need to assess knowledge gaps and educate and train most of its building-related professionals. A third issue is the emphasis on capital/first costs versus equal consideration of the "2nd price tag" of continuous operation and maintenance costs paid over a building's lifetime. Lastly, there is a persistence of outdated myths about off-the-shelf and proven technologies used in NZE buildings. For example, companies that install traditional HVAC systems may say that air source heat pumps do not work well in cold climates like Montana's.

KEY STRATEGIES:

- The Montana Energy Office should conduct an audit of existing state-owned and -leased buildings to rank them by which are most energy- and water-efficient and retrofit to achieve NZE.
- The State of Montana should seek to ensure all new construction for state-owned buildings has a NZE or NZE-ready goal.
- The Montana Legislature should provide tax incentives for developers designing and building to NZE standards.
- The Montana Energy Office should work with national experts and professionals to develop educational materials, guidelines, and learning opportunities (e.g. seminars, trainings, etc.) on NZE design for various stakeholder audiences. Those stakeholder audience should include developers, building owners/operators, local code officials, the general public.