MONTANA CLIMATE SOLUTIONS COUNCIL

FULL COUNCIL MEETING—DECEMBER 09-10, 2019

MEETING INFORMATION

12/09/2019 | 1:00pm-5:30 pm
12/10/2019 | 8:00am – 4:30pm
Room 317, Montana State Capitol

ATTENDEES

Council Members Present:

Co-Chair Patrick Holmes, Governor's Office
Co-Chair Kathy Hadley, Nat'l Center for Appropriate Tech, retired
Steve Thompson, Nat'l Center for Appropriate Tech
Gerald Wagner, Blackfeet Nation Environmental Pgm
Chuck Magraw, Natural Resources Defense Council
Bill Bryan, ONE Montana
Tom Armstrong, Madison River Group
Al Ekblad, MT AFL-CIO
Tracy Stone-Manning, National Wildlife Federation
Amy Cilimburg, Climate Smart Missoula
Diego Rivas, NW Energy Coalition
Amy Barnes, Department of Commerce
Andrew Valainis, MT Renewable Energy Association
Caitlin Piserchia, Montana Chapter of the Sierra Club
Alan Olson, MT Petroleum Association
Gary Wiens, MT Electric Cooperatives' Association
Laurie Young, University of Montana
Shaun McGrath, DEQ
John Tubbs, DNRC
Joe Thiel, Montana University System
Scott Bischke, MountainWorks, Inc.
Mark Haggerty, Headwaters Economics
Cathy Whitlock, MT State University
Bruce Maxwell, MT State University
Jayne Morrow, MT State University
Lee Spangler, MT State University
Ben Thomas, MT Dept. of Agriculture
Galen Hollenbaugh, MT Dept. of Labor and Industry

ACTION ITEMS

Review the draft charter and be prepared to amend or approve on 12/10/2019.

NOTES

Monday, December 9, 2019

1:00 pm Welcome and Opening Remarks

Governor Bullock addressed the Council with a summary of ongoing changes in Montana and the importance of moving forward with a climate plan.

1:15 pm Introductions and Overview of Agenda

After council members provided brief introductions, Kathy Hadley reviewed the upcoming agenda, and Patrick Holmes covered ground rules and the draft charter. The Charter says that approval of topics requires a 2/3

supportive or neutral votes, and Chairs have authority to table controversial topics, though three votes from councilmembers allows the council to revisit those topics. Questions on the charter from Scott: (1) Can remote councilmembers vote and (2) there are no names next to ex-officio members, so does that mean they can have proxy votes? Patrick responded (1) that the intent is that executive agencies speak as one voice, and (2) that it may make sense to take a ballot approach, as opposed to voting in person.

1:45 pm Montana's Changing Climate – And Overview of the Findings and Projections of the 1st Montana Climate Assessment

Cathy Whitlock presented on Montana's Climate Assessment, the process for creating it, its findings, and goals moving forward. Bruce Maxwell presented on the MCA's agricultural sector.

Gerald commented that bison are being reintroduced on tribal lands; the land responded positively. Bison are going to be most sustainable for the land.

Caitlin asked how new developments in climate science from the IPCC are informing the MT Climate Assessment. Cathy responded that they used NOAA regions for their models, but thinks in the future models will be smaller resolution, at the scale of watersheds, and more accurate. Bruce pointed out there will always be uncertainty, but one rancher said, "I don't believe the weather, but I watch it every night." So, people want to know the predictions.

Bill asked, is the Climate Solutions Council assuming that climate change is human-caused?

Patrick answered that the assumption is we need to do something moving forward.

John Tubbs offered the perspective that it only takes one human-influence-denying climate change presentation for every twenty or so thoughtful, science-based climate presentations to convince people that our actions don't matter. He encouraged the Council to ground this climate report in the foundational science-driven principles of the Montana Climate Assessment. Joe agreed that having a decision-making service grounded in community concerns is a good way to create impactful climate information. Bruce gave an example of a climate service in Oklahoma. Cathy pointed out that states have different strengths, Colorado is good at water prediction, California at predicting fires, Florida sea level rise. Chuck noted the Executive Order suggests an assumption that the climate changes we observe in Montana are human caused because the Order focuses on clean energy and human actions. Tom agreed with Chuck, and pointed out a need for effective education to combat smear campaigns. He noted that education/communication are not well-funded but should go hand-in-hand with scientific studies. For example, when he managed a large budget for the white house, only a tiny percentage of the budget was spent on communication.

3:15 pm Panel 1: Montana Adaptation Efforts: State, Local, and Tribal Experiences

Paul Lachapelle led a panel discussion with panelists including Gerald Wagner, Amy Cilimburg, Steve Thompson, and Ann Schwend. Each panelist was asked to respond to three questions. Council members were then invited to discuss and ask questions.

What best practices have resulted from your community climate planning work?

Gerald emphasized gaining buy in from the community by hosting discussions—not telling people what do to.

Amy: Developed a SummerSmart program with health department to buy air filters to deal with wildfire smoke. She said tackling one component of climate change can be a good way to go.

Steve: Merging adaptation, mitigation and social cohesion underpins community resilience.

Ann: Have someone who can communicate the science to a community is a way that matters. Giving people the ways to solve problems will get people to believe in the science/causes. Adaptation MUST happen at the local level (with a bigger picture framework from which to draw resources and set goals)

What challenges or unanticipated consequences resulted from public interactions?

Gerald said they started climate planning by bringing in the environment office professionals, but noticed interest was waning. Instead, planning staff went to the professionals.

Ann: Don't talk about what is causing climate change; focus on the consensus that snowpack is melting sooner, impacts are happening, etc. Complex issues.

What suggestions do you have for communities contemplating climate planning?

Gerald: don't reinvent the wheel, pair community interest with existing programs and funding.

Amy: Check out Climate Ready Communities: 1 understand climate projections 2 work with community members to decide who/what is most at risk 3 develop solutions/goals.

Steve: Use Energy Corps members to help in Montana's diverse communities

Ann: Use Big Sky Watershed Corp members to help watershed groups and conservation districts plan for drought preparedness. Learn from the communities with which you are trying to work.

Laurie Yung pointed out that science alone will not make people act; building relationships is essential. If people feel like they can solve a problem, then they'll believe the science.

Caitlin Piserchia asked for examples of mitigation and adaptation in tandem. Steve responded: local food helps reduce greenhouse gas and makes communities more resilience not having to depend on distant sources of food. Gerald said using beaver to keep water on the landscape longer. Amy said weatherizing houses to help people be less miserable and have lower bills in the summer.

John Tubbs asked if there was a resource they wished they had during these planning efforts. Amy spoke about preparing communities for multiple scenarios; she said a similar climate service is needed for other communities. Ann said water monitoring is needed to understand and communicate the water budget. Gerald said a pool of staffing/people resources to continue these efforts. Steve agreed that staff capacity is needed to build relationships and funding to bring in those people.

Shaun McGrath observed the panelists represented planning on different levels; he asked what might be the best approach, pros/cons. Scott asked if mitigation and adaptation were not the same, and how to incorporate into planning. Gerald said they work on an adaptation level because tribes are not in the position to tell non-tribal agencies what to do. Ann said drought planning was a voluntary effort; water planning makes sense on a watershed level because communities have to share a limited resource that transcends political boundaries. Steve pointed out that Climate Smart Montana provides a platform for community members to meet as a community to begin climate planning, and with other communities.

4:15 pm Workshop 1: Draft Findings and Recommendations of the Climate Adaptation, Information, and Decision Support Committee

John Tubbs and Tom Armstrong led a discussion of the work of the Committee. Recommendations are based in natural resource strategies and communities. The Committee has drafted 18 different white papers. John said this Committee is in a good place to help integrate strategies from the other two Committees that play off each other well. He emphasized a need to link project funding with monitoring funding. Used the example of NRCS focus on on-farm efficiency. Very successful on farm, but dried up the river and watershed.

John's questions for the Council: What are we adapting to? Is there a period of record where we can trust the median/percentiles, or are we in such a dynamic system that we cannot trust even paleo records? Is water really the resource that binds them all?

Climate services are a bridge across uncertainty, fear, anxiety, between science and decision making. "What are we adapting to" depends on who you ask, what scale you're interested in. Tom Armstrong presented the following questions:

- What is the ideal organizational construct of a Montana Adaptation Knowledge Exchange (MAKE)?
- Is there a primary "client" and what does that look like?
- How do we fund it? (both short and long-term)
- How do we promote state-level synergy versus redundancy?

Tracy Stone-Manning pointed out that one model is to provide resources to existing agencies to protect the public; clarified that Tom is promoting the creation of a new climate services agency. Tom disagreed; pointed out that partners would be existing organizations. John said, MAKE would help make sure agencies are applying the science.

Jayne pointed out grassroots efforts presented by panelists, whereas the MAKE model seems to be top down.

Caitlin suggested the answer to "Who is this for" should think about marginalized groups; involve tribal governance.

Lee said today we heard about the uncertainties associated with climate impacts—how can we generate static recommendations to address impacts? MAKE sounds like it will provide a feedback loop.

Patrick sees assessment (MCA provides), capacity (MSU Extension provides), and a network (could be MAKE) as the components proposed in a knowledge exchange.

Tom emphasized a need for shorter and timelier climate assessments.

The Council discussed whether a nonprofit or government entity was best to deliver a climate service. Nonprofits can be nimbler than government, but climate adaptation is a public service that may be best provided by government.

5:15 pm Public comment

Ann Schwend said that resources for planning are essential for implementing this climate plan.

Kristen Walzer encouraged the Council to consider a carbon price. A carbon fee or dividend could impact Montana greatly because, for example, northwest energy has a zero-carbon price in their procurement model; could be $4/ton in the near future. Federal discussions are around $50-$100 a ton. By considering a carbon fee now, we can start planning ahead from the investor to the consumer. This type of fee could be used for transition money, or returning money to people.

Tiven Bovington introduced himself and promoted developing a one-pager summarizing why a transition economy is good, beyond just dealing with climate change.

Caitlin Piserchia submitted post card comments from members of the public. Many specified a call to action to reduce greenhouse gas emissions, reduce reliance on coal, embrace renewable energy, protect farmers, and/or act on climate change. Substantive suggestions included roof top solar on all public buildings and schools with incentives for private residents, a restructured taxation on incoming populations with means migrating to the state because of climate, and employing a carbon taxation. On the postcards, Montanans responded to the questions, “What do you value and can’t stand to lose, how has climate change affected you or your community, and what’s your vision for Montana’s future.” Many responses focused on protecting the future for family, protecting the outdoors and wildlife, and protecting the economy, and protecting human health.

Tuesday, December 10, 2019

8:00 am Welcome and Overview of Day

8:15 am Panel 2: Technology and Climate Solutions – Building a Montana Innovation Landscape

Jayne Morrow of Montana State University kicked off the panel with an overview of the Technology Innovation and Transitions Committee. The Committee has spent the last few months discussing strategies to improve technology innovation in the state in a way that would also benefit climate solutions. The question is how can Montana create an innovation landscape that will help foster technologies to address climate change? We want to be on the forefront as a state, leading the conversation. As a Committee, we’re looking to identify the elements of a successful innovation landscape – institutional entities, the environment, the culture, funding capital, sustained material resources, human capital. The goal of this panel was to bring forward ideas and recommendations for discussion. Each panelist had five minutes to share remarks and will then participate in a discussion with the Council.

Dave Hunt, Senior VP at Mitsubishi Hitachi Power System Americas, Inc.

The company has been around for 150 years and has 57 different companies within the group, with around 21,000 employees worldwide. While the company has an interest in a reliable grid, it is technology agnostic. Dave spoke about several 100% hydrogen projects around the world (Utah, Netherlands, Japan, Australia). He explained that the retirement of coal power in the United States reveals a real need for replacement power in the near future. He pointed out that projects take several years to get off the ground, from permitting through operation, so there is a pressing need to take action now to address needs in the future.

Dave also discussed the ups and downs of renewable generation – hourly/daily shifts as well as seasonal shifts. There are going to be times of surplus generation and times of deficit. Today, the deficits are backed up with fossil fuel generation. Moving toward clean energy requires finding a way to back up the deficits with something other than fossil fuels. How do we capitalize on the times of surplus to shore up the deficits? The ACES Project in Salt Lake City is a storage option for renewable power through conversion to hydrogen and then reconversion back to electricity when it's needed. For example, the project could take hydro power from the Pacific Northwest, solar or wind power from Montana, convert it to hydrogen and store it in Salt Lake City. It would be converted back to power when needed. Such a project would result in $5 billion of investment in Montana and could take up to 15 years to complete with the right policy and economic environment.

Trent Berg, Montana Photonics Industry Alliance

Discussion of the innovation landscape in the context of the photonics cluster in the Gallatin Valley.

- Mission to help grow and sustain photonics
- Coop trainings, networking and outreach, global advocacy, work with university system to train workforce
- Intelligent optics sensors, laser technology – electronics of the 21st century
- Top 5 and highest density optics cluster in the US
- Photonics will impact solutions in climate change – examples:
  - Bridger Photonics: Detect methane gases
  - Blackmore Sensors and Analytics: self-driving car technology increasing transportation efficiency
  - Resonon – crop health sensors
- Cluster has grown organically without a lot of focus until recently - now at a critical mass ready to make a leap

Patrick Flores

Discussion of carbon tracking, trading, and off-sets. Opportunities exist for selling carbon credits. Large networks formed by farmers working with the investment community to sell credits while also using farmland to conduct research into best practices, etc. for storing carbon in the ground/soil. A change of .1% of MT soil organic matter is equal to taking 24 million cars off the road for 1 year.

Lee Spangler, Montana State University

- Optic and Photonics
- Innovation System Feedback
  - Basic Research
  - Applied Research (focus shifted to university applied research)
  - Development
  - Commercialization
- Solution to bring university applied research and private development closer together to close the "Valley of Death" between research and development (or academia and industry)
- Access to university infrastructure and research provides opportunities
- Has encouraged entrepreneurial spirit in students
- Project Concept Example: Microbial Induced Carbonate Precipitation
  - Scales of experimentation and modeling
  - Received federal funding
  - Scaled out in Butte and licensed technology
  - Moved technology to the edge of commercialization
- If you want to innovate, you need to facilitate research and development

Discussion

Jayne Morrow opened the discussion portion of the panel by asking each panelist a question.

Jayne: Trent, you talked about the value of innovation clusters. What is your opinion of the elements critical for success? What are the major challenges or gaps you see in Montana?

Trent: Our cluster was able to grow rapidly starting in the 1980s because there was a synergy between academia and industry. We have an international airport, we have a university propping up the research, and Montana has a good work ethic. However, wages are going up, cost of space and cost of living are going up, so these are not driving innovation anymore. We face a challenge moving forward because we see a broadening gap between academia and local industry. Talent is a big deal for innovation. We have to be able to keep our talent here and recruit in high quality talent. Our graduate programs are under-enrolled, so we don't have the recruiting pool we need out of university. We have to take an active role in recruiting high quality talent to come to Montana State University. We need to pay professors competitively. We need to provide competitive fellowship opportunities for graduate students. We need entrepreneurial people who don't just want to do research but research *and development*.

Jayne: Dave, as you look at your company's competition on a global scale, what opportunities does Montana offer?

Dave: One thing that struck me is the mindset of working in cooperation rather than competition. You have an environment where people are open to participating in the global scale but localizing it. We

recognize that we need to go out and make connections in local communities to bring people together across research, manufacturing, etc. The partnerships highlighted in the presentations today stood out. When there is a local community benefit, there is an opportunity for better partnerships. Need to leverage the local community and cooperation.

Shaun McGrath: In terms of the cities where you are working now, were there certain policies the cities put in place to support your work?

Dave: In Florida, there was a quid pro quo tax deferral structure. Spend small, learn fast, embrace failure. Deploy things that make sense at a small scale as quickly as possible. Don't apply the same approval process as you do for mature technologies, it takes too long, you need a streamlined process. People are afraid to take risks and afraid to fail. That's why you start small, avoid the layers of protection that take time.

Gary Weins: What is the estimated cost per MWh for the hydrogen

Dave: It depends on the scale and duration of storage.

Jayne: Patrick, what opportunities for innovation do you see that bring the intersection of adaptation, mitigation into focus?

Patrick: We have great resources for quantifying uncertainties and great partners in farmer and rancher networks. Where the innovations will lie is at the intersection where we can apply research to landscapes and gather feedback on what is working.

Bruce Maxwell: What do you mean by a research network?

Patrick: The extent to which we can account for inaccuracies in the models, the better we and improve certainty. Networks help us understand how the inputs will differ in different areas. Economic benefits of agriculture are spread throughout the state.

Jayne: Lee, do you have any recommendations from lessons learned on how we can work collectively to improve the innovation landscape in Montana?

Lee: We need to do a better job connecting researchers with companies across the state. State-level funding could help companies on issues where they cannot get federal funding (often localized or state issues). The photonics industry has been tremendously successful in growing, but the university can only grow so much in that area. Seasonal storage idea combined with extreme events caused by climate change – is the storage capable of meeting the challenge of extremely high energy demands that may come from, for example, an extreme cold event.

9:30 am Meeting the Challenge of Our Time: Pathways to a Clean Energy Future for the Northwest, An Economy Wide Deep Decarbonization Pathways Study

A presentation from Eileen Quigley of the Clean Energy Transition Institute & Jeremy Hargreaves of Evolved Energy Research. Associated slides will be shared on the Climate Council web page.

Eileen opened the presentation by explaining that it is not a prescribed course with answers for Montana. They have developed a baseline study to help communities think through the choices and policy decisions that may apply in the region or state.

Several key points to take away from the presentation: (1) Deep decarbonization is achievable with today's technology. The challenge is in how the costs get allocated and how the technologies are put in place at the right time to address the issues. (2) We're talking about a massive transition. There will be winners and losers and we need to do the best we possibly can to minimize the impact on the losers and maximize winnings for everyone. (3) Solving regionally is optimal because we share many resources and better sharing will help us be even more effective.

The study looked at how the Northwest might meet decarbonization goals by 2050. The scope of the study included the four Northwest states: Montana, Idaho, Washington, and Oregon. The study considers all energy sectors. The emissions target for the study is an 86% reduction in energy-related CO2 below 1990 levels by 2050 – this is to account for uncertainties in achieving CO2 reductions from other sectors of the economy, still aiming to achieve 80% over all by 2050.

Montana's wind resource is very complimentary to solar production in California and southwest. Montana also has rock and basin formations as well as saline aquifers that are suitable for carbon sequestration.

Jeremy discussed the key findings of the study, including:

- Energy *generation* must be 96% clean.
- It is cost effective to move toward a highly efficient built environment and aggressively pursue vehicle electrification, both powered by clean electricity.
- Natural gas remains important for reliability.
    - Without new natural gas plants for electricity in the future scenario, the need for storage and renewables to ensure reliability would be about double the cost.
- There are significant cost savings to be found in better integration of the Northwest and CA grids.
- Biomass can be used in sectors that can't be electrified (e.g. air travel, heavy duty trucking)
- Electric fuels (created by using electrolysis to turn electricity into hydrogen to either burn directly or store, liquify, or turn to methane to inject into a pipeline) and emerging technologies can help balance the grid.

Failure to electrify has enormous implications for supply. Restricted biomass availability has similar impacts. Synthetic electric fuels are the "backstop" resource. Electrification is key to getting to a low-cost low-carbon future.

Jeremy provided an overview of the study's modeling approach. Population and economic growth (and therefore growth in end-use demand) are factored into the study. Refer to the presentation slides for charts and full analysis of results from the study.

Cumulative costs of the central case are about 9.5% higher than business as usual (~1% of region's GDP). But this is purely the economic cost and doesn't include the savings/benefits of slowing climate change, reducing air pollution, etc.

Scott Bischke: Some take-aways from the presentation for the Council to consider, with *existing* technologies:

- Promote heat pumps
- 100% electric vehicles fed by clean energy
- Invest in electrolysis and hydrogen infrastructure
- Fund/Create large-scale biofuel program
- Some use of carbon capture and sequestration

Jeremy: In order to get adoption of electric vehicles, which is key to all of this electrification, in the near term we need to work to eliminate as many barriers as possible for people: get the charging infrastructure in place, consider the rates people pay to charge their vehicles, etc.

The bottom line is that *deep decarbonization is achievable*, but it will require:

- Energy system transformation
- Deployment of multiple strategies
- Investment and R&D
- Technology, business model, and policy innovation

Over the next ten years, what exactly needs to be put in place to make this happen? Equity implications must be explored and addressed. We need to push for widespread electrification of the transportation sector. We need to severely limit the use of natural gas in buildings, transport, and the grid. We need better grid integration. We need to actually assess the available biomass to be used as jet and diesel biofuels. The study kept hydro generation steady, but we need to consider whether that will be the case as climate change impacts flows.

Al Ekblad: The cited 9.5% increased cost is very significant for a large portion of our communities who are already making decisions about whether they will eat or buy gas or heat their homes.

Eileen: That is why policy is so important. We need to have honest conversations about it. The policy development is critically important, and I urge you to keep in mind how the transition can take place without further dividing our country.

Jeremy: Gasoline costs the same for everyone. In switching to electric vehicles, there is the option to charge different, more equitable, rates such as a low-income rate.

Alan Olson: I agree we need to do something, but if we're going to eliminate our industrial base, the taxes from that base, and the well-paying jobs, where are we going to get the income to do any of this?

Patrick Holmes: Jeremy, can you comment on some of the employment dynamics behind this transition?

Jeremy: Even if it may be costlier to invest in employment within one state rather than another, it may be preferable to support a local economy. It takes weighing the different benefits. This purely infrastructure development modeling doesn't really get at that issue. It can inform the policy decisions though, by considering the costs and benefits of different options.

Eileen: I recognize the issues in the workforce that may come about from this transition. For example, fossil fuel workers are unionized, and renewable workers are not. Wages differ, of course, too. We need to take the time to consider what the workforce transition really looks like. The Institute has a whole track on clean energy workforce.

11:55 am Council Charter

Patrick Holmes introduced a suggested name change for the Innovation Committee. He also posed a question to the Council about how Council wants to engage the public. He explained that the group needs to set clear direction of where it is heading. A large convening of stakeholders is still being considered/planned during the second part of the Council's work, likely in the Spring of 2020.

12:00 pm Lunch

1:10 pm Council Charter

Council Charter approved with consensus of full Council.

1:30 pm Workshop 2: Draft Findings and Recommendations of the Greenhouse Gas Mitigation Strategies Committee

Shaun McGrath introduced the work of the Committee and outlined sectors covered in this Committee. The Committee has structured itself in six main subgroups, which include (1) RE, Transmission, Markets, Peak and Capacity Challenges, (2) Energy Efficiency, Residential & Commercial, Tribal & Local Governments, (3) Industrial, Oil and Gas, (4) Farms, Ranch Lands, Forests, and Wood Products, (5) Transportation, and (6) Modelling.

- Renewable Energy, Transmission, Markets introduced by Andrew Valainis
    - Recommendations sorted by Distributed generation, Utility-scale generation, Storage, Other issues related to renewables
    - Transmission/Markets: Regional and larger market integration: how to maximize regional coordination
- Energy Efficiency, introduced by Diego Rivas
    - Highlighted importance of EE for decarbonization, and relative lack of progress in Montana
    - Potential priorities: improved building codes, rate design, on-bill financing, focus on large buildings
- Industrial, Oil/Gas, introduced by Alan Olson
    - Overview: absence of GHG emissions data is significant obstacle to developing recommendations
    - Develop GHG reporting guidelines—will need funding; may face challenges at legislature
    - Oil and Gas: reviewed methane releases; emission source and quantity is not known, and recommendations without good data are not advised; working group formed to examine emissions sources and quantities, and will consider best management practices for reducing emissions - 74% of Montana oil and gas productions come from companies that are part of the working group;

  - Discussed other sources of methane emissions: landfills (examples Alan provided indicate that the Billings landfill releases 98,000 tons methane annually, Missoula 26,000 tons, while Billings Exxon refinery releases 2,000 tons annually), sewer lagoons, etc. Seeks guidance from Council on recommendations related to other sources.
  - Other potential stakeholders identified
- Farms, Ranchland, wood products introduced by Ben Thomas and Bruce Maxwell
  - Buckets: resetting research priorities; adoption employment of technology; Information to identify long term trends and inform producer decisions.
  - Gaps identified: culture (but rapidly changing)—people are interested in help and many young producers are open to creative ideas.
  - Detailed studies of livestock methane and nitrate emissions are necessary
- Transportation, introduced by Chuck Magraw
  - Emissions from transportation are significant;
  - GHG emissions from transportation can be reduced through vehicle efficiency; adopt low-emission vehicle standards, incentivizing EV purchases; incentivizing development of charging infrastructure; building codes could be structured to require charging infrastructure; Utility rate design important
  - Engagement with MDT on VMT reductions is critical
- State Agencies, introduced by Laura Berka
  - Goals due by March 15, and report on progress by June; planning to pull together
  - State has 15-20 years of energy programs that have been benchmarking, metering of energy use in state buildings, which is critical
  - Solar and energy efficiency on state buildings
  - Procurement
  - Flexible scheduling

Groups broke out by subject area to discuss draft recommendations:

1. Transportation report-out:
   a. MDT or other entity could develop ride share program
   b. Consider biodiesel development
   c. Be ready to implement corridor charging infrastructure
2. Farm, Ag report-out:
   a. Use education programs to promote shelter belt planting
   b. Connect producers with carbon markets: potential
   c. Research: develop perennial crops; support diversification of crops
3. Industrial, Oil & Gas, report-out:
   a. Pursue funding through Commerce and DES to study emissions from sector
   b. Encourage Board of Oil and Gas to get primacy over carbon injection
   c. 45Q tax provisions re: enhanced oil recovery – make Class II wells eligible
   d. Develop voluntary program (inspections, etc.) for methane reduction
   e. Consider options to reduce disposal
4. Efficiency, report-out:
   f. Use DEQ/NCAT Montana Resource Efficiency Program as model for commercial audits

g. Discussed on-bill financing, need for capital, potential for using private capital or existing AERLP funds as loan loss reserve
h. USB—potential for third party manager
i. Local governments: important for clean energy goals to include additionality as principle goal

5. Renewable Energy, report-out:
    j. Options to update RPS: how to balance pace of renewable energy development with EO target; consideration of including storage standard
    k. Discussion of using mandates versus incentives to increase adoption
6. Modelling, Brian Dekiep
    l. Coordinating w/CETI to develop pathways
    m. Need EV load growth

2:45 pm Workshop 3: Draft Findings and Recommendations of the Climate Innovation and Transitions Committee

Mark Haggarty led a discussion of the work of the Innovation and Transitions Committee.

1. Committee is focused on process. How does change happen? What can we do as a Council to move innovation forward in the state?
2. The Council participated in two guided exercises
    a. What are the elements of Montana's innovation landscape? What innovation is required to meet the committee's goals?
        i. Embrace failure in the public sector
        ii. Access to elected officials
        iii. Influence funding discrepancies between urban and rural areas
        iv. Relationships, critical mass
    b. What vulnerabilities do we have? What barriers must be addressed?
        i. Low density population across Montana, "friction of distance"
        ii. Tax policy
        iii. Resources (financial and human) for making change

<u>Discussion</u>

The private sector typically allows employees to be creative as it often results in innovation. A comment was made about perhaps encouraging something similar to exist in the public sector. It is likely difficult to actually implement because work that results in "failures" will be difficult to explain away even if overall there are good outcomes where the work flexibility did result in process efficiency gains.

Innovation was identified not just specific to the Innovation and Transitions committee but rather any element that overall contributes to addressing climate change.

To be successful the recommendations of the Council must be long lasting, provide and implement a methodology, and must live beyond the November 2020 election. Relationships help build capacity over time. Going to need stakeholder buy-in. Must consider tribal input. Key is to figure out structural organization to link organizations, universities, extension office, agencies etc. Barriers may occur at University level if land grant rules cannot be followed when implementing policies.

Funding is a large issue:

- Need to leverage multiple rural communities together to complete with larger single entities when pursuing funding
- There are philanthropic funding routes but often those providing the money are looking for larger attention and must find ways to interest them in lower attention gathering projects
- Philanthropic money often only goes so far, need permanent funding to keep the momentum going on climate change efforts

Next Committee meeting is January 8, 2020

Next Council Meeting

The next meeting of the full Council will be in late-January at a location to be determined. The following dates are being considered and a decision will be made in the next few days:

- January 22 or 23
- January 27 and 28
- January 29 and 30

Council Member Reflections and Guidance

Patrick Holmes asked the Council to think about the following items:

- Identify sets of recommendations that are well understood and supported and worthy to come to the full Council for a recommendation
- What are the key questions or unresolved issues to be addressed? Where are you looking for feedback from stakeholders and the public to guide and shape work?
- How would you propose the Council evaluate these recommendations as they come forward (draft decision criteria)?

Discussion of recommendations, consensus, deliberation of recommendations, and volume and prioritization of recommendations. There was a question about how members can share whitepapers with other Committees that they are not on. Answer was to send whitepaper suggestions to the Chair of the other Committee for consideration. Chairs are responsible to process these.

The meeting ended with a round-the-table sharing of final comments and take-aways. Some of the points shared by Council members included:

- Monday's message was a little gloomy, Tuesday's information gives us hope there is a path forward on decarbonization.
- Presentations were well received by members - presenters were very solid.
- The Eileen Quigley/Jeremy Hargreaves presentation provided information existing technologies rolled out at the right levels provide a path forward.

- We need to recognize there are many factors that create inequities in our society and they are not related to energy costs/energy policy so we cannot be afraid to embrace the choices necessary to address climate change as these other factors will still be impacting society inequities.
- Appreciative of opportunity to participate on Council.
- Members are obviously very capable and committed.
- Will need to bring along the Department of Administration on rolling up agency effort piece of the executive order.
- Need to understand assumptions that formed the basis of the Eileen/Jeremy modeling
- Need to recognize that some groups including Co-ops have already been making reductions relative to addressing Climate Change
- Question on whether Council is in favor of expanded modeling building on Eileen/Jeremy results.
- Modeling scenarios were well received – question on whether that is the best and latest information on what was presented.
- Putting forward a plan without "firming power" would be a mistake.
- Must consider economic impacts of decisions that result from Council's efforts – impacts future Montana generations
- Creative solutions occur at the intersections and fringes of our various stakeholders, coming together for discussion is paramount
- Declining wages are a barrier and consider aging workforce as well as potential changes in tax base
- Identify who needs to implement recommendations – federal, state, individuals