#10-01

From: Curtis Shuck
To: Curtis Shuck
Cc: [redacted]
Subject: [EXTERNAL] Well Done Update - April 12, 2020
Date: Sunday, April 12, 2020 9:23:50 PM
Attachments: Well Done Process Roadmap_ces.pdf
MISSION.pdf

Happy Easter everyone and the Team at Well Done Montana LLC and the Well Done Foundation is wishing you and yours all of the best in these craziest of times!

With everything going on, we felt that we needed to get a brief "Well Done Update" out to everyone to share some good news and bring everyone up to speed on our activities:

- The Well Done Foundation's website is up and rocking it www.welldonefoundation.com [welldonefoundation.com] with some of our latest and greatest info

- The Well Done Foundation has been cleared to receive Tax Deductible Donations as our applications are being processed by the IRS

- The Well Done Foundation and Well Done Montana, LLC have opened a Field Office on Main Street in Shelby, MT and appreciate the support from the City of Shelby, MT

- The Well Done Foundation and Well Done Montana LLC have opened a Field Yard and Shop in Oilmont, MT

- The Well Done Foundation has sponsored our first "Crowd Funding" Campaign for the Big West Anderson #3 Adopted Orphan Oil Well https://www.classy.org/campaign/big-west-anderson-3-adoption/c278574 [classy.org]

- The Well Done Foundation received the endorsement of the Toole County, MT Board of Commissioners and the Montana Board of Oil & Gas Conservation and are busy pursuing other Agency support at the State and Local levels

- Well Done Montana LLC and the Well Done Foundation have started the Surface Restoration activities and are now in the final countdown for the Plugging and Abandonment the Big West Anderson #3 Orphaned Well the week of April 20, 2020 – Setting a HUGE Milestone for the Team, doing good one well at a time and making history!

- Well Done Montana LLC recently completed its sixth (6^{th}) Orphaned Oil Well Adoption with the MBOGC and has four (4) other Orphaned Wells in its active Program Qualification Process

- Well Done Montana LLC has "Tagged" the bottom of four (4) of its Adopted Orphaned Oil Wells as part of our early due diligence process and is working with the MBOGC on finalizing the P&A Plans

- Well Done Montana LLC's Technical Team is growing and is busily developing our enormity of

Project Documents

- The Well Done Team is developing our funding and execution plans to complete of 2020 Goal of Plugging, Abandoning and Restoring the Surface Areas on 20 Adopted Orphaned Oil Wells

We are thankful to be have the opportunity to develop our Well Done Program here in the State of Montana and are looking forward to working with you in the weeks and months ahead. We realize these are unprecedented times with lots of uncertainty and believe me, we have thought about tapping the brakes on the Well Done bus many times. Instead of pushing off the closure of the Big West Anderson #3 so that we could stage up a nice "Event" around the milestone, we made the call accelerate the process so that we could use the time to gather more critical data.

We appreciate your support and hope that you hang in there with us as we all feel our way carefully back into a SAFE, HEALTHY and thriving economy. We will have more good news to share with you all shortly!

Curtis E. Shuck, Jr.
Managing Member
[redacted]
Well Done MONTANA LLC
https://www.welldonemontana.com/ [welldonemontana.com]

#10-01

Orphaned Oil & Gas Wells

The Well Done Process

Orphaned Well Identification

Using a number of sources, the Well Done Team identifies the Orphaned Wells, performs background research and creates a Well Profile for the Field Team including:

* Well History
* Well Characteristics
* Location
* Surface Ownerships
* Existing O&G Leases

Orphaned Well Qualification

The Well Done Team then performs field verifications and generates a detailed Orphaned Well Report to determine if the well qualifies for further analysis and works with the Surface Owners for an Access Agreement to perform further testing for:

* GHG Emissions
* Surface Conditions
* Accessibility

Orphaned Well Adoption

The Orphaned Well is monitored and analyzed for a period. A Bond is then posted and the Orphaned Well is Adopted from the State. A Campaign Budget is prepared and a new Orphaned Well Campaign is launched to raise the funds for the Plugging, Abandonment and Surface Restoration of the Orphaned Well

Orphaned Well Closure

The Well Done Team works with the State to develop approved Plugging & Abandonment Plans. The Campaign work activities are then planned with the Surface Owners, State and Local Agencies. Well Done uses local and regional service companies to perform the work to create jobs, support the local economy and eliminate GHG emissions

Orphaned Well Restoration

The Well Done Team works with the Surface Owners, State and Local Agencies to complete the Surface Area Restoration and develops a long term site monitoring plan. The Orphaned Well Campaign's Climate Benefit Units are calculated based on the Well Done Methodology and are verified and audited by an independent third party validation organization

Well Done
FOUNDATION INC™

MISSION

“Well Done Foundation, Inc. is a nonprofit corporation formed for the purposes of promoting Orphaned Oil & Gas Well Education and Adoption Programs for the plugging, abandonment and surface restorations that supports a healthy environment, industry and communities”

From: Brandon Wittman
To: Climate Council
Subject: [EXTERNAL] Montana Climate Solutions Plan Comments
Date: Monday, April 13, 2020 3:41:01 PM

Council,

I am Brandon Wittman, the CEO and General Manager of Yellowstone Valley Electric Cooperative (YVEC). We are headquartered in Huntley, MT, which is just 7 miles east of Billings. We do serve in and around the City of Billings. 90% of our services are in Yellowstone County and the rest are in the 5 counties surrounding Yellowstone.
We are one of, if not the, fastest growing electric cooperatives in Montana. Currently we serve 21,000 meters, which makes us the second largest electric co-op in the state. Additionally, we have learned to become one of the most efficient electric cooperatives in the United States. We lean heavily on good equipment, from trucks to computers, our employees have what they need to do their jobs. We also lead in the area of technology. Our metering system, mapping and staking system and customer service information all link together. My employees can see a map of our system in real time. They can see voltages, outages and other system information, making their jobs much easier to complete. From knowing when a meter goes out of power, to knowing what is needed to repair a wide spanning outage, the technology we use helps make us effective and efficient. As a matter of reference, the average electric cooperative in Montana serves 251 members per employee, in the US that number is 308 members per employee. At YVEC, we serve 430 members per employee. We are typically in the top 1% in the nation for this particular efficiency rating.

YVEC is categorically opposed to any recommendations, mandates or regulations that makes our cooperative less efficient or less effective for our members. We are tasked with providing reliable and affordable power on a not-for-profit basis for our members and we do not take that task lightly.

We strive to provide energy solutions for our members. Some desire solar, while others simply want the cheapest power possible. Our Power portfolio is 20% hydro and 80% being a mix of gas, coal and wind. Our rates are very competitive in the region. We do offer community solar. We sold our first community solar array out in a couple months' time and our Board of Directors is taking a second community array under consideration currently. In looking at the proposed strategy for the three-tiered TOU Rates, we don't see the advantage in a program like this. Our endeavor into community solar was based on member interest. We did sell out the first 80 panel array, but aren't sure we have enough interest to sell out another 80 panels. In other words, our approach was member focused. They set the market when it comes to interest in programs versus interest in affordable power. Predetermining rates based on the time of use will no doubt effect behavior but that behavior change might be negative. The rates suggested and the inclining block rates will have a devasting effect on the economy, the ability of many, especially fixed income families, to afford their power and will also cause some, like large use residential customers to seek areas of the country that do not have TOU rates. Additionally, many need to control the environment in their homes due to their health. Making it much more expensive for those that cannot afford higher priced power is quite dangerous. Taking the current COVID-19 issue as an example, many are forced to stay home and need to use power during peak times in order to still be productive employees. TOU-tiered

rates would not be helpful right now. Montana is also home to some very extreme weather from below zero temperatures to highs over 100. TOU-tiered rates will NOT change residences behaviors during these extreme temperature swings, it will simply make power more expensive. As I stated YVEC's rates are competitive and affordable, anything that changes this is not supported by our cooperative. We have worked very hard at becoming and remaining efficient. We have NOT had a rate adjustment since 2011 and take great pride in that. Our members appreciate our efforts to keep prices stable. This TOU-tiered rate strategy would simply make us raise our rates overall. We do not support this strategy.

As I mentioned we already offer community solar and are looking at offering more in the future. We do this based on member interest. Mandates regarding community solar are not necessary. Members and customers alike will make decisions based on interest and economics. Mandates only force higher priced power on those that can least afford an increase. Additionally requiring solar in new construction will likely produce a negative reaction regarding the construction of new homes. As I mentioned, YVEC is one of the fastest growing co-ops due to new construction. Many come to Montana from other states due to our open spaces, smaller towns and less intrusive regulations. Requiring more solar is not a step in the right direction, but rather an issue that may put a damper on new home construction due to higher prices and less personal control. Programs like YVEC's community solar program are a perfect answer for those seeking affordable and low risk solar options.

YVEC is also a leader in MT when it comes to the Universal Systems Benefits Program (USB). We have always been one of the larger contributors to USB since its inception. We provide significant assistance to low income members, provide rebates for energy efficient appliances, heat pumps and other items. YVEC also provides energy audits for members and makes significant upgrades annually to our electrical utility plant, which contributes to the overall electrical efficiency of our system. Based on the 2.4% of 1995 revenues formula, we have always exceeded our required expenditures. Quite often we spend more that double what is required. That is by choice and fits into our economic model currently. However any changes to the USB program that will in turn put pressure on our rates will not be supported. Again, we are able to exceed what is required and make it work financially. An increased regulation resulting in a needed rate increase is not acceptable. We feel the current program works and is a nice blend of regulation in combination with local control.

While there are many areas in the suggested recommendations that are concerning, the above mentioned issues are most important to YVEC. As already stated, any mandates or regulations that will result in a forced rate increase, will have negative effects on the members of YVEC and we will not be supportive.

Thank You

Brandon J. Wittman

CEO/General Manager

Yellowstone Valley Electric Cooperative, Inc.

[redacted] Huntley, MT 59037-0249
Direct - [redacted]
Cell - [redacted]

Yellowstone Valley Electric Cooperative INC

www.yvec.com

From: Joseph Hauck
To: Climate Council
Subject: [EXTERNAL] Comments on: Montana Climate Solutions Plan
Date: Tuesday, April 14, 2020 6:55:35 PM

Dear Governor Bullock and the Climate Solutions Council,

Thank you for all your hard work in developing a landmark Montana Climate Solutions Plan. As a citizen of Montana, I am very pleased that this group was formed and that the Montana Climate Solutions Plan is being formulated. Please consider the following comments.

In response to the questions: is there value in developing estimates of the costs and benefits of climate preparedness and impacts? – I think we need to be prepared for the reality of human displacement and migration due to climate change. I think we need to have greater encouragement of local food production and the local economy.

In response to the goal of "maintaining electric system reliability and affordability" I would say that this goal has been overstated. While this is an important goal, I feel it has been overemphasized in the past as an excuse to not diversify the states energy portfolio. The state needs to be much more aggressive with its investment in renewable energy sources.

The document asserts that, "aggressive and timely adoption of energy efficiency measures and the electrification of end uses such as water heating, home heating and cooling, and passenger vehicles are key drivers of reducing costs associated with clean energy transitions." I agree with this statement, but people need incentives and financial help to commit to these changes. I would also note that we should be promoting and investing in alternative transportation infrastructure (walking, biking, and transit) rather than only electric vehicles.

One recommendation is to increase the allowable systems size for distributed generation systems. I would definitely agree with this recommendation because we absolutely need more renewable energy production and we need to eliminate as many barriers as possible. I would also highly recommend increasing the allowable installation size for residential installations. I would also recommend allowing net-metering to allow the creation of community-based renewable energy installations.

In response to the question: should the state consider future renewable energy requirements for energy providers? – I would say yes, absolutely. Our state needs to be moving in this direction as much as possible. This may require that we provide financial assistance to rural energy cooperatives or make the phasing for rural energy cooperatives less stringent.

I am also a member of Citizens' Climate Lobby and participate in the Bozeman Chapter. We believe the most effective and efficient path forward for lowering emissions in Montana is with the help of a national, incentive-based Carbon Fee and Dividend policy, exemplified by HR 763, The Energy Innovation and Carbon Dividend Act.

A slow, predictable rising pollution fee on fossil fuels will bolster all other Montana initiatives

for efficiency, alternative energy, storage, grid upgrades, and support carbon sequestration in industry, agriculture and forestry as well. Revenue returned as a per capita dividend will help households during the transition.

Carbon fee and dividend is:
• Effective: Reduces emissions by 40% in first 12 years using incentives instead of regulations
• Good for People: Saves lives with reduced pollution and puts money in people's pockets to help during the transition
• Good for the Economy: Will create 2.1 million new jobs in local communities across the US
• Bipartisan: Appeals to most Americans regardless of political affiliation.
• Revenue Neutral: By the government not keeping any of the money, this provides a smoother process for getting this legislation passed.

Please consider adding support for a national Carbon Fee and Dividend policy, or HR 763 specifically, into the Montana Climate Plan.

Thank you for considering these comments and for all of your good work. I look forward to reading the final draft of the Montana Climate Plan.

Sincerely,

Joe Hauck
Belgrade, MT

#10-04

From: Debbie Hanneman
To: Climate Council
Subject: [EXTERNAL] Comments for Montana Climate Solutions document
Date: Thursday, April 16, 2020 10:24:00 AM

Hi - I'd like to submit the following comments to the Montana Climate Solutions document:

To: Montana Climate Solutions Council
From: Debra Hanneman, Whitehall, Montana 59759; Member/Owner, Montana Vigilante Electric Cooperative
Re: Comments on Draft Montana Climate Solutions Plan 2/12/2020

My comments on the Draft Montana Climate Solutions Plan pertain to the role of the Montana Electric Cooperatives' Association (MECA) as a major stakeholder in planning for climate change and its broad-ranging impacts on both a local and global scale. MECA should be a part of the discussion for a Montana Climate Solutions Plan as the cooperatives deliver energy in all of Montana's 56 counties and serve over 400,000 members. My opinion on MECA being an actual working partner in Montana's Climate Solutions Plan is contrary to a recent viewpoint published in MECA's March 2020 "Rural Montana" magazine wherein cooperative members were urged to send a message saying that we're already leaders in using clean energy, and thus we don't need additional government mandates. It is correct that some cooperatives do generate renewable energy and others largely distribute hydropower, but many Montana electric cooperatives are not transparent enough to easily ascertain their power supply composition. However, more to the point is that climate change is an issue that needs to be tackled by many interested parties, and certainly this should include an electric cooperative association that serves close to half of Montana's population. Additionally, because climate change is not a static problem, it does need to be frequently addressed, and MECA needs to be continually involved in a solutions dialog.

In reading through the Montana Climate Solutions draft, I found that the recommendations regarding MECA are not onerous. In fact, there are no government mandates specified in this draft, but instead there are very positive suggestions made for MECA to participate in discussions for promoting on-bill financing (which at least one cooperative already does), changing rate strategies to enhance energy efficiency, increase and update the state renewable energy portfolio standard, and to explore policies that could further advance clean energy solutions. The final suggestion for MECA's involvement that I found in this document is the question of how the state could advance voluntary measures in coordination with electric cooperatives. As I view the draft recommendations, this is really an opportunity for Montana's electric cooperatives to get involved in forming climate solutions that are not only good for their member/owners, but for all Montana.

In summary, as a member/owner of the Montana Vigilante Electric Cooperative, I heartily agree with recommendations in the Draft Montana Climate Solutions Plan that MECA should be an active stakeholder in future discussions and actions relevant to climate solutions.

Debra Hanneman, PhD
[redacted]
Whitehall, Montana 59759

[redacted]
www.earthmaps.com [earthmaps.com]
www.geopostings.com [geopostings.com]

#10-05

From: Susan Bilo
To: Climate Council
Cc: [redacted]
Subject: [EXTERNAL] Submission for Your Consideration
Date: Friday, April 17, 2020 5:25:40 PM
Attachments: Dec 14 2019_NZE_ Bilo_ClimateSolnsCouncil_WhitePaper.pdf

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Hello: I submitted this Net Zero Energy Buildings white paper earlier, but did not see it listed as a Recommendation being considered. Perhaps it will not be considered, but I wanted to re-submit in case it simply fell through the cracks.

Susan Bilo
[redacted]

MONTANA CLIMATE SOLUTIONS COUNCIL

COMMITTEE NAME: GHG MITIGATION

WHITE PAPER:

NET ZERO ENERGY BUILDINGS: TACKLING CLIMATE CHANGE MITIGATION & ADAPTATION

JANUARY 14, 2020

PRIMARY AUTHOR: SUSAN BILO, GREEN COMPASS SUSTAINABILITY CONSULTING

DOES THE WHITE PAPER NEED TO BE COORDINATED WITH OTHER COMMITTEES?

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.

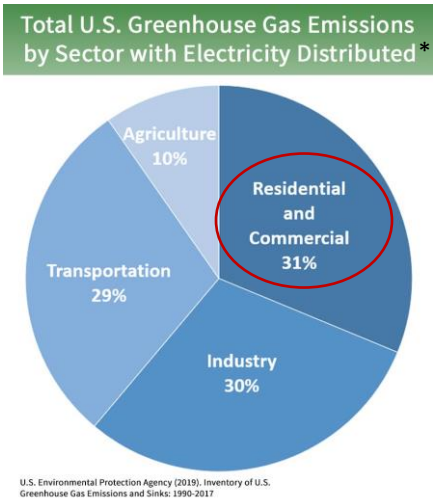
Adaptation because NZE buildings can "float" power outages by A.) staying warmer in winter and cooler in summer due to superior building envelopes, and B.) when their solar electric, wind, or other electrical-generating renewable energy systems include battery storage, either on-site or as part of a micro-grid, they can be wired to have electricity when the electrical grid goes down.

Innovation/Transitions because NZE buildings require an integrated, whole systems approach that is not widely practiced and they use proven, off-the-shelf technologies that are deemed innovative. Achieving a NZE building requires a transition away from business-as-usual thinking, building codes, policies, and processes.

KEY ISSUE

1. The Building Sector emits the most greenhouse gases (31%) - and even more so when considering the embodied energy of construction materials and interior design.

* Viewing the chart title: "….with Electricity Distributed" means the electricity used in the listed sectors is included/accounted for in the %'s. Some charts show electricity generation as a separate sector.



2. Heating and cooling account for most of the energy used in most buildings in the U.S. and in Montana.

https://www.eia.gov/energyexplained/use-of-energy/homes.php

https://www.eia.gov/consumption/commercial/reports/2012/energyusage/index.php

3. NZE buildings are designed to significantly reduce ALL of a building's energy use and thus their greenhouse gas emissions. Refer to Marc Rosenbaum's 13 Best Practices link: http://nesea.org/conversation/masters-blog/marc-rosenbaums-13-best-practices-zero-net-energy-buildings-znebs

PROGRESS TO DATE

There is no need to re-invent the wheel when it comes to adopting a NZE or NZE-ready goal. 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. Because it is the most progressive, the State of Montana should adopt the International Living Future Institute's (ILFI) Living Building Challenge Program and use its Net Zero Energy guidelines: https://living-future.org/

There are two non-profits that keep track of NZE certification numbers and trends. Montana should seek a partnership with these groups for program recommendations and trainings.

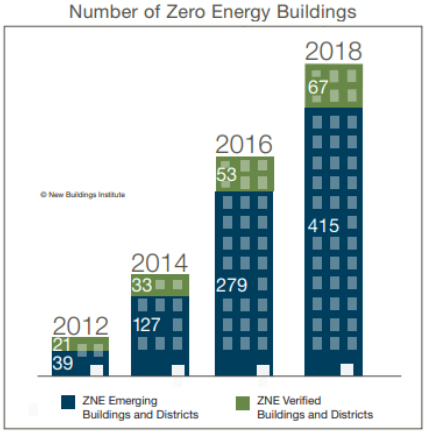


Fig 2. There are now 67 ZE Verified and 415 ZE Emerging projects documented by NBI.

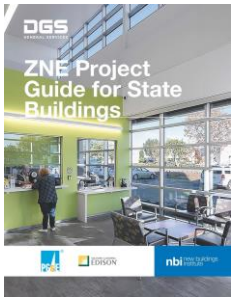
https://newbuildings.org/resource/2018-getting-zero-status-update/

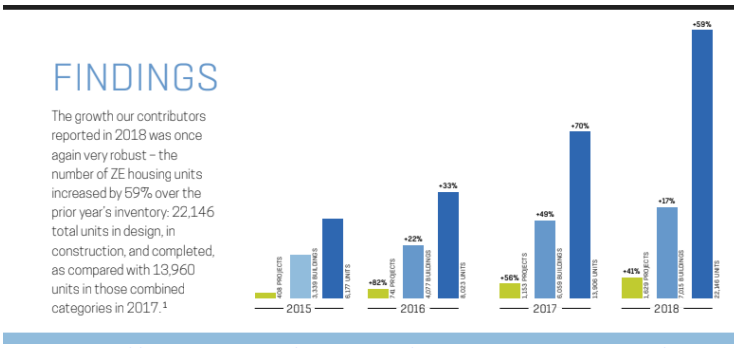
For the **Commercial Building Sector**, the New Buildings Institute (NBI) tracks NZE building progress. https://newbuildings.org/

Most of the 482 commercial buildings listed in NBI's report have achieved or have been designed to achieve a NZE Energy Use Intensity (EUI) goal between 18 and 24 kBtu/sf/year. Architects use energy modeling programs and have flexibility in how they achieve an EUI goal. "The ZE Verified projects on NBI's NZE building list on average use 60% less energy than comparable existing U.S. commercial buildings and 46% less energy than new buildings under one of the most stringent U.S. base codes."

NBI has developed a *Zero Net Energy Project Guide for State Buildings*:

https://newbuildings.org/resource/zne-project-guide-for-state-buildings/





https://teamzero.org/resources/zero-energy-inventory/

For the **Residential Building Sector**, TEAM ZERO (formerly the Net Zero Energy Coalition) tracks NZE and NZE-ready projects: https://teamzero.org/

The U.S. Department of Energy has a well-established Zero Energy Ready Home program: https://www.energy.gov/eere/buildings/zero-energy-ready-homes

GAPS

NZE adoption barriers include:

1. Lack of awareness of the concept and multiple benefits.

2. Lack of educated customers and trained professionals. 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. Luckily, 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.

3. 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.

4. Persistent, outdated myths about off-the-shelf and proven technologies used in NZE buildings. For example, companies that install traditional HVAC systems will likely state that air source heat pumps do not work well in cold climates like Montana's.

STAKEHOLDERS

A more detailed list of Montana-based stakeholders should be developed. Stakeholders already identified include architects, builders, developers, community development professionals, code officials, sustainability offices, renewable energy professionals, real estate agents, and commercial and residential building owners.

RECOMMENDATIONS

RECOMMENDATION 1: THE STATE OF MONTANA ADOPT A NZE GOAL

- The State of Montana will lead by example and make sure all new construction has a NZE or NZE-ready goal. New construction provides the most efficient and cost-effective path for achieving NZE.

- Rank existing state-owned and -leased buildings by which are most energy- and water-efficient and retrofit to achieve NZE. Oregon retrofitted a 1950s-era Department of Transportation building to a (Site) EUI of 36: https://newbuildings.org/wp-content/uploads/2017/09/Radiant_ODOT_FINAL.pdf

- Then, lead tours and develop case studies to share the information and inspire others.

AS APPROPRIATE, CONSIDER THE FOLLOWING RELEVANT TO THE RECOMMENDATION:

- State of Montana building officials will implement.
- As described under Committee Coordination, NZE buildings proactively tackle climate change mitigation and adaptation simultaneously.
- This recommendation will be highly effective in addressing greenhouse gas reduction.
- The recommendation will require the training of professionals who will design, construct, and operate NZE buildings.

- NZE design and construction cost more per square foot to build, but operation and maintenance costs are significantly reduced and these savings pay for the initial higher costs. Actual costs vary by building type and climate.
- Implementation could be immediate.
- The State of Montana will establish a NZE and Energy Use Intensity (EUI) goal for all new construction and existing retrofits and hire knowledgeable and experienced folks to get it done resulting in lower utility bills, and, more comfortable and durable state buildings that do not contribute to the increase in greenhouse gases.
- The State of Montana can include electric vehicle charging equipment on or near NZE buildings as a component of its NZE goal to tackle the Transportation Sector's greenhouse gas emissions.

RECOMMENDATION 2: PROVIDE INCENTIVES AND ADOPT POLICIES THAT ENCOURAGE NZE DEVELOPMENT

- Provide tax incentives (for a set number of years) for those taking the lead and building successful NZE projects.

- Encourage and assist in development of a NZE step/stretch code to be voluntarily adopted by local code officials.

- To accelerate the design and construction of NZE buildings, consider policy requiring a NZE-ready goal for all new construction.

AS APPROPRIATE, CONSIDER THE FOLLOWING RELEVANT TO THE RECOMMENDATION:

- Montana DEQ and its Energy Office can oversee and implement.
- Con: The State on Montana will likely need to hire more staff at least for a set period of time. Pro: As described under Committee Coordination, NZE buildings proactively tackle climate change mitigation and adaptation simultaneously.
- This recommendation will be highly effective in addressing the reduction of greenhouse gases if step codes are adopted and architects and builders believe the tax incentives are financially worthy.
- Will have to research estimated costs and resources needed to implement this recommendation.
- Implementation can be quick: Step codes have already been developed by others and could serve as a template. Tax incentives might need to be approved by the legislature.
- DEQ and/or the Energy Office can easily track step code adoption and who applies for the tax incentives.
- Examples: According to a May 2018 American Council for an Energy Efficient Economy website article, "British Columbia unveiled its voluntary zero energy "step code," which its local governments could choose to adopt, in April 2017. A few months later in November, Oregon announced it would begin incorporating zero energy strategies into its building codes beginning in 2019. This year in May, California adopted a new building code that requires all new homes be zero electricity by 2020 and new commercial buildings by 2030. Other active zero energy plans are underway in Vermont, Rhode Island, and Massachusetts." https://aceee.org/blog/2018/10/zero-energy-buildings-rise-barriers

RECOMMENDATION 3: SUPPORT STATE-WIDE NZE EDUCATION AND TRAINING EVENTS

One barrier to NZE adoption is the lack of awareness of the building option and its multiple benefits. Coordinate and/or contract out state-wide educational events targeting aforementioned stakeholders. And, support seminars and trainings at existing events already coordinated by stakeholder groups.

For example, DEQ can support and coordinate with Montana's American Institute of Architects (AIA) Chapter to bring ILFI's Living Building Challenge and DOE's Zero Energy Ready Homes program training to AIA's annual conference. The training will have the added value of providing AIA continuing education credits.

Consider holding seminars, workshops, and trainings in Whitefish's Center for Sustainability and Entrepreneurship:

https://greenschoolsnationalnetwork.org/whitefish-school-district-strives-for-net-zero-through-center-for-sustainability-and-entrepreneurship/

AS APPROPRIATE, CONSIDER THE FOLLOWING RELEVANT TO THE RECOMMENDATION:

- Montana DEQ and or the State Energy Office can coordinate and/or contract out state-wide educational events.
- Cons: None. Pros: The educational events will be led by professionals who are already achieving NZE goals whether related to design, construction, research, financing, policies, etc.
- This recommendation will be very effective and have a high impact in addressing one of NZE's key barriers.
- This recommendation will ultimately have an adverse impact on building-related professionals who want to maintain business-as-usual and resist change.
- Costs will depend on multiple factors: number of events, presenter stipends, support materials provided, etc.
- There can be a quick turnaround time.
- Success can be measured by number of attendees and follow-up regarding implementation of NZE projects.
- Residential case study: NZE and other high-performance building programs have traditionally been a goal of folks with abundant financial resources and those that develop subsidized housing. Habitat for Humanity became interested in these programs after many families had to move out of their homes because they could not afford the utility bills and maintenance costs of code-built homes.
- A shining example of what has already been achieved can be found in Whitehall, Montana. The National Affordable Housing Network has developed a NZE-ready community called the Mountain Horizon's Solar Subdivision: http://www.nahn.com/mountain-horizon/

  The NZE strategies used for both high-end and subsidized homes as well as commercial buildings are the same! Because of this and with NZE being adopted by customers in the middle of the financial spectrum, NZE can be realized today.

#10-06

From: [redacted]
To: Climate Council
Subject: [EXTERNAL] Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw
Date: Friday, April 17, 2020 9:13:11 AM

From: [redacted]
Sent: Friday, April 17, 2020 9:12 AM
To: info@theclimatecenter.org
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:11 AM
To: The Climate Reality Project Al Gore
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:11 AM
To: Greenpeace International
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:10 AM
To: InsideClimate News David Sassoon
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:10 AM
To: Sierra Club
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:09 AM
To: Editorial Board
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:08 AM
To: Josh Haner
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:08 AM
To: Coral Davenport
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:08 AM
To: John Schwartz
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:07 AM
To: Joe Berry
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:07 AM
To: Susanne E. (GISS-611.0)[COLUMBIA UNIVERSITY] Bauer
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:07 AM
To: NASA's Climate Change Newsletter
Subject: Fw: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

From: [redacted]
Sent: Friday, April 17, 2020 9:06 AM
To: Stanford Woods Institute for the Environment
Subject: Emailing: My Questions for Joe Berry and Stanford Woods Institute CO2 = You and Me ~ by Bruce Kershaw

CO2 = You and Me ~ by Bruce Kershaw [co2u.info]

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My Questions for Joe Berry and Stanford Woods Institute

Posted on April 17, 2020 [co2u.info] by Bruce A. Kershaw [co2u.info]

~

Bruce A. Kershaw

[redacted]

to be continued

April 13 ~ April 17

2020

~

I am for Green and a Healthy Environment

as

Evaporated by the variable Sun

CO2 + Water Vapor + Sun Energy = Green = Environment

~

Pages: 1 2 [co2u.info] 3 [co2u.info] 4 [co2u.info] 5 [co2u.info] 6 [co2u.info]

About Bruce A. Kershaw

Born ~ March 27, 1956 at 11:10 pm Long Beach California other wise I'm still breathing O2 made from CO2 and eating food made from CO2 ~ the rest is Icing on the cake ~
View all posts by Bruce A. Kershaw → [co2u.info]
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#10-07

From: [redacted]
To: Climate Council
Subject: [EXTERNAL] Comments response
Date: Friday, April 17, 2020 5:08:08 PM
Attachments: Dear Climate solutions council.docx

All,

Please review attached.

Best regards,

Matt Haggerty
General Manager
Park Electric Cooperative, Inc.
[redacted]
[redacted]
Livingston, MT 59047
[redacted]

Climate solutions council,

I am a manger of a co-op in Montana. I would like to provide you with my opinion based on my experience in the electrical industry. I will share my view of the effects I foresee with the proposals.

1. **How could an energy efficiency standard, demand response standard, and an energy storage standard be structured to advance clean energy goals in partnership with Montana's Rural Electric Cooperatives and their customers?** I would like to make you aware of the effects I see on our co-op members if a demand response standard and an energy storage standard are put in place.
   a) A demand response standard could be especially devastating to our local industrial businesses and small businesses alike. The purpose of a demand response system is to reduce loads on the power grid and reduce generation requirements. By reducing base load generation, it increases the risks of our systems capacity not being adequate during weather events, or many other unforeseen critical times. Setting a demand response standard will negatively affect how businesses can run their day to day operations. Many businesses in our coverage area run multiple shifts or 24 hours a day. Some cycle three weeks on-shift then one week of off-shift for maintenance, cleaning, and repairs. If your council creates a set standard that limits the amounts of energy, or requires increased energy efficiency measure be put in place, or sets times of day that businesses can use energy, these businesses are likely to fail. Then lay off their employees or close their doors permanently. A one size fits all policy is unrealistic. For reference I will share an example of capacity needs not being met. Not too long-ago Bonville Power Administration was forced to make the tough decision to cut the power to an aluminum plant for two years. This was caused by lack of system capacity and generation capabilities due to a drought on the Columbia river system. Please keep in mind this was prior to other base loads being removed from the grid, like we are seeing today. For the record the aluminum plant closure was set for two years, they laid off 5,000 workers and the plant has never re-opened. Please do not set a standard that will likely set Montana up for failure by eliminating capacity of power our grid. Co-ops want to ensure that our memberships energy needs are met 7 days a week 24 hours a day, in good weather years and bad weather years.

   b) The energy storage standard would likely include a very futuristic plan. Why I call it futuristic is currently there is not enough data on battery life to make an informed decision. I am not aware of any projects that use renewable sources of generation to charge batteries for mid-term energy use. Mid-term us would be the ability to provide enough energy to operate a system for days or weeks. Currently these storage systems only provide a few hours of energy supply. In my opinion batteries would need to be able to store enough energy to last weeks or even months to provide any value to our grid reliability. Grid reliability becomes more of a concern as we transition to less reliable generation. When I think about what are the limitations of renewable generation, a few questions come to mind. Like how often is it cloudy for weeks, and how will this or snow fall affect solar generation? Another source of generation that causes reliability concerns is wind energy. With wind only being online less than 30% of the time. How much storage will be needed to fill these gaps? With these unanswered questions I would also like to review where our battery technologies is at today. Currently most battery storage test projects are being used to reduce system peaks for a few hours. Experts are predicting them to last from

3-10 years. The life expectancy of the batteries is depended on if they are cycled on and off daily, or monthly. From the limited data I can find on battery storage systems, if they are cycled daily, they're expected to last 3 years. Battery storage systems cycled on and off on a monthly basis are expected to last 7-10 years. I have to question the accuracy of these estimates since I am not aware of any storage systems that have been online for even three years. This means the experts are merely making a guess on how long they will last. My point is, how do we make educated decisions when the technology is still being tested? We have no proven data of how long a battery system will last. This lack of information will make estimating the rate of return on investment impossible. Not having information available on the costs and replacement timelines will negatively affect electric rates across the state, if the current estimate are incorrect. Also, I would like to raise the question of how would we depose of these thousands if not hundreds of thousands of batteries? Are we doing more harm than good?

2. **How should the state consider future updates to the renewable portfolio standard and its impacts to IOU ratepayers and Cooperative customers?** The state needs focus on two major points.
   1. What will the realistic cost to the rate payers be from the required changes?
   2. Will we have the capacity needed in all weather conditions to provide energy 24-hours a day, 7-days a week, 365-days a year to our businesses and households?

When reviewing the cost effects to rate payers of each of these changes, the information needs to be transparent, and compiled from multiple sources. This will aid in providing more accurate cost estimates of proposed changes. It is crucial that Co-ops and IOU will be able to provide feedback on these changes, and be involved in the decision making. It seems that the power providers are thought to be road blocks in this process, and that they do not understand the mission. When in actuality many utilities have the same mission. They just want to ensure that the energy needs of our consumers will be there when needed. Each utility will have the best understanding of what will or will not work on their systems. They also have the best understanding of their consumer's needs. Utilities have a better understanding of technologies needed to support desired results of the proposals, and system capacity requirements 24-hours a day, 7-days a week, 365-days a year. If the state ignores these recommendations, we will likely have rolling black outs, and brown outs until capacity can be created again. Creating capacity that provides energy 24-7 takes years to build in most situations. Resource adequacy is the area I worry the most about for our state. Many people do not fully understand capacity, and the side effects of it being reduced. Predicting significant weather events is not possible. An example of this was in February of 2019. Temperatures dipped to -30 or more in many areas of the state. This drove the demand for energy to all time highs for my co-op. Our system currently has the capacity to facilitate these dramatic weather events, and all the energy needed that day was available for our consumers. This extra energy was provided since we currently have extra capacity to accommodate for major changes in demand. This will change if the state sets demand standards that does not include enough base load in its renewable portfolios. It will also reduce the capacity and availability of energy needed during these critical times.

Here is a suggestion to achieve a usable proposal for the state:

To help ensure that the state creates a usable proposal, and that it understands all points of view. It must create a group that has 50% of the voting members from an electric utility, and 50% of the voting group from special interests. Then require a 75% acceptance by this group to pass the propsal. By doing this it will ensure that each side has a voice. It will also require them to work together to provide an outcome that will work for all of Montana's residents.

Best regards,

Matt Haggerty

From: Kristen Walser
To: Climate Council
Subject: [EXTERNAL] Comments on the Climate Plan
Date: Friday, April 17, 2020 3:48:18 PM

To: Governor's Climate Solutions Council

Re: Draft Climate Plan

Thank you for the Council's hard work in identifying many excellent recommendations to lower emissions in Montana, help us adapt to the changing climate, and coordinate these efforts.

To put the Recommendations in perspective, I'm sure you will be applying the results of the Council's modeling of the emissions reductions potential, emissions timeline (immediate, within a decade, by 2040, 2050+), co-benefits of equity, jobs, health, and short and long-term costs. It's hard to make suggestions without this information.

There is one recommendation you could include that lowers emissions quickly, effectively, with no state funding required. Carbon pricing has been used around the world, and if designed well, can create jobs, improve health, and help Montana reach its most ambitious emissions goals by boosting recommendations in the Plan that reduce emissions most, saving lives and money.

The carbon fee and dividend policy is a type of carbon pricing that rolls the costs of carbon emissions into the price of the producing fossil fuels, creating a 'market signal' to everyone using those fuels for making and delivering products, for heating their homes, or driving their cars. In short, as the carbon fee rises over time, all consumers, government, and industries are encouraged to find efficiencies and alternatives, just like the ones suggested in the draft Climate Plan.

A carbon fee and dividend provides the grease. It motivates change on all levels, by creating an economic incentive. And when carbon is assigned a value, ways to keep it out of the air become economically viable. Alternatives like sequestering carbon in soils and forests, or alternative technologies for energy storage, grid upgrades, and innovations we can't even imagine, become cost effective for utilities, consumers, and investors alike.

To protect the most vulnerable during the transition, the fees collected from the fossil fuel producers are distributed to people monthly in an equal share called a dividend, along the lines of the COVID-19 relief funds.

As an example, the energy Innovation and Carbon Dividend Act, H.R. 763 is a well-thought out Carbon fee and dividend bill in Congress now that currently has 77 co-sponsors and has been studied by the Center for Global Economic Policy and Regional Economic Models, Inc., among others.

3500 economists have endorsed the carbon fee and dividend approach, along with policy makers, businesses, and religious organizations. See Montana endorsers at EnergyInnovationAct.org/supporters.

If coupled with a transition plan funded by 1% of the carbon fee revenue to go towards coal miners and replacement coal tax revenue, this bill could lower dangerous carbon emissions while helping Montanans during the transition.

Thus, I highly recommend including support for a federal carbon fee and dividend policy in the Governor's Climate Solution Plan.

Kristen Walser

Additional Resources

Please consider the Clean Energy Transition Institute's (CETI) Pathways for Montana, aimed at lowering energy-related CO2 emissions to 86% below 1990 by 2050, as a guide for your

recommendations.

- Electricity generation must be ~96% clean. Montana has significant wind resources to help reach a regional increase of 44 MW by 2050.
- Integrate the Northwest and California grids to take advantage of CA and South West solar resources and achieve significant cost savings
- Achieve highly energy efficient buildings powered by clean electricity
- Aggressive vehicle electrification powered largely by clean electricity
- Severely limit natural gas in buildings, transport, and the grid, while retaining Natural Gas in 2050 at low capacity for electricity reliability
- Develop biomass to replace jet and diesel fuel
- Carbon Capture and sequestration is viable in Montana due to the sedimentary rock, basin formations, and saline aquifer storage potential
- Electric fuels and emerging technologies play a role in replacing liquid fuels and storing energy, e.g., power-to-X, electrolysis, direct air capture, biofuels, providing ~12% of energy by 2050.

This study did not discuss policy options, non-energy CO2 nor non-CO2 GHG emissions (e.g., NO2, methane, agricultural emissions, F-gases), transitions strategies for fossil fuel workers, nor social costs of carbon in their economic analysis.

It does mention that Montana's policy goal for Carbon Neutrality in the electricity sector by 2035 would drive electricity emissions reductions faster than in their model.

To explore different policy options and their effect on emissions and temperature, use the En-ROADS.org climate simulator developed by Climate Interactive, MIT Sustainability Initiative, and Montana's Ventana Systems.