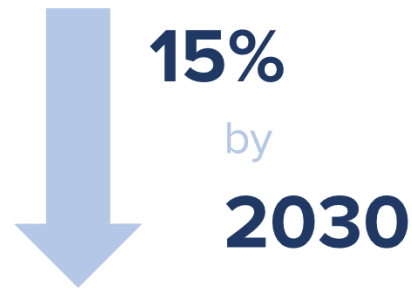
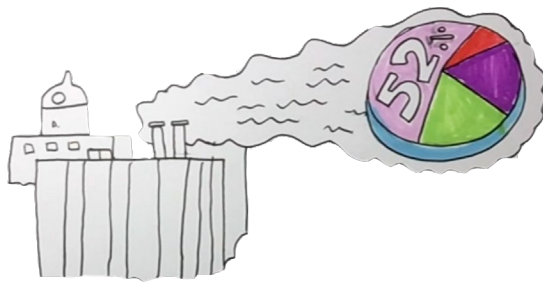




Missoula  
COUNTY

Building(s) for the Future Summit  
Breakout Group: Owner Occupied Housing  
January 15, 2020, 12:30 - 3:00pm

Welcome to Building(s) for the Future and the “Owner Occupied Housing” breakout group. Missoula has worked to advance climate mitigation and adaptation efforts in recent years (adoption of the 100% Clean Electricity Resolution, Climate Ready Missoula plan, Zero by Fifty plan, etc). Buildings play a role in each of these efforts as **they comprise 52% of our community’s carbon emissions, according to 2014 data.**<sup>1</sup> They are increasingly important as pressures mount for development to keep pace with community growth, and in order to meet our carbon neutrality and 100% clean electricity goals, we estimate that Missoula must **reduce total building emissions 15% by 2030.**



To “build for the future,” we need to consider ways to decarbonize the design, construction, operation, and deconstruction of our building stock. Over the past several months, we’ve done extensive research and received technical support from the American Council for an Energy-Efficient Economy (ACEEE) and National League of Cities on building policy and program precedents and best practices to inform our conversation. Panelists from across the country will share inspiring and innovative approaches, and our breakout group will build on their presentations to chart the path forward for how Missoula can build a more equitable, low-carbon future by focusing on ways to reduce energy intensity of owner occupied housing.

Homeowners comprise a major demographic in our community (49% of households in the city and 58% of households in the county), and energy efficient and affordable housing is a crucial area of need and opportunity in Missoula.<sup>2</sup>

<sup>1</sup> Climate Smart Missoula and City of Missoula. “[Missoula Community Greenhouse Gas Emissions Inventory](#),” March 2017.

<sup>2</sup> “[Missoula Housing Report](#)” (Missoula, MT: Missoula Organization of Realtors, 2020).

## Primary Strategies to Consider

With technical assistance from the American Council for an Energy-Efficient Economy, the National League of Cities, and community members, we have identified several strategies that Missoula should consider implementing. This list is not meant to be exhaustive (we hope you will provide additional ideas!), and they are brief descriptions rather than comprehensive explanations of how such a program or policy would be designed or implemented. Where possible, we have included an estimate of the \$/MT of CO<sub>2</sub> reduced to help evaluate their impact and cost. Our hope is that the following will jumpstart the group's conversation and help all participants begin from a place of shared understanding. As you read, consider the pros and cons of each, as well as what you believe Missoula should prioritize pursuing in the next year, 5 years, and 10 years. Strategies include:

- Home energy disclosure at time of purchase (energy use label)
- Residential energy conservation ordinance
- Energy savings competition
- Retrofit assistance program
- Energy efficiency “bulk buy”

For an overview of all the strategies being discussed today, including the ones in this background brief, please reference Appendix A.

### *Home energy disclosure at time of purchase (energy use label)*

Energy bills are a significant household expense, and yet prospective homebuyers are typically unable to factor this information into their decision making. Unless a prospective buyer specifically requests utility data, it is rarely provided.<sup>3</sup> Requiring all units to include an energy use label at time of sale would allow homebuyers to make better informed decisions. A home energy label provides information about a property's energy consumption and costs, plus recommendations for cost-effective energy saving improvements. While there are several rating systems available, the Department of Energy's Home Energy Score has become popular because of its simplified approach that makes it easy for home buyers and sellers to make comparisons across properties.<sup>4</sup> Bozeman has identified this as a strategy in their most recent climate action plan, and they cite the Department of Energy's Better Buildings Initiative's research that energy efficient certified homes sell faster and for 4 to 6% more.<sup>5</sup> While initial results from home energy disclosure policies in Portland, OR, Berkeley, CA, and Santa FE, NM

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<sup>3</sup> City of Bozeman, MT, “[Bozeman Climate Plan](#)” (City of Bozeman, MT, 2020).

<sup>4</sup> American Council for an Energy-Efficient Economy. “[Home Energy Efficiency Policies: Ratings, Assessments, Labels, and Disclosure.](#)” Washington D.C.: American Council for an Energy-Efficient Economy, October 2018.

<sup>5</sup> City of Bozeman, MT, “[Bozeman Climate Plan](#)” (City of Bozeman, MT, 2020).

are promising, more data is needed to assess the energy reductions that come with home energy disclosure and labeling.<sup>6</sup>

### *Residential energy conservation ordinance*

A residential energy conservation ordinance (RECO) requires prospective sellers or buyers to perform a set of energy efficiency improvements, many of which would be low-cost improvements. Ideally, a RECO is paired with technical assistance and rebate programs to reduce costs for the homeowner. These ordinances could result in 10 - 20% energy savings for the average home, but savings will vary based upon required measures.<sup>7</sup> It may increase the listing price for the home, though this may be offset by the lower utility bills for the life of the house. Burlington, VT, San Francisco, CA, and Berkeley, CA each have adopted a RECO.<sup>8</sup>

### *Energy savings competition*

An energy savings competition could encourage local businesses, homeowners, and renters to reduce their energy consumption. Program design of such competitions varies greatly, and Missoula would need to engage all relevant stakeholders when identifying the details of a Missoula based competition. Generally speaking, competitions measure the change in participants' energy use from before the competition to during the competition and provide prizes to winners, utilizing online software to engage participants and track results via a public leaderboard or dashboard.<sup>9</sup> Missoula would not be the first Montana community to design an energy savings competition: Bozeman, MT hosted the "Energy Smackdown" competition in 2015.<sup>10</sup>

In a review of energy savings competitions, they were found to achieve, on average, a 5% reduction in electricity usage.<sup>11</sup> If paired with other incentives that could make whole home retrofits possible, energy savings could be much more substantial. Rutland NeighborWorks in Vermont spearheaded a program that allowed 5% of residences to undergo a comprehensive retrofit, which led to 30% savings in each household.<sup>12</sup> For an energy savings competition to be most effective, it needs to be paired with other resources, such as robust customer service: a

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<sup>6</sup> American Council for an Energy-Efficient Economy. "[Home Energy Efficiency Policies: Ratings, Assessments, Labels, and Disclosure](#)." Washington D.C.: American Council for an Energy-Efficient Economy, October 2018.

<sup>7</sup> John O'Neill and Stefen Samarripas, "Missoula Residential Climate Action Strategies," October 2, 2020.

<sup>8</sup> Ibid.

<sup>9</sup> Ariel Drehobl, Maxine Chikumbo, and Kate Tanabe. "[Reducing Energy Waste through Municipally Led Behavior Change Programs](#)." Washington, D. C.: American Council for an Energy-Efficient Economy, November 2018.

<sup>10</sup> Montana Right Now. "[City Launches Bozeman Energy Smackdown](#)," May 29, 2015.

<sup>11</sup> Edward Vine and Christopher Jones, "[A Review of Energy Reduction Competitions: What Have We Learned?](#)" (Berkeley, CA: California Institute for Energy and Environment, May 2015), p. v.

<sup>12</sup> Ibid.

recent study by Vine and Jones found that competition alone was not sufficient to achieve energy usage reductions.<sup>13</sup>

### *Retrofit assistance program*

A retrofit assistance program would be a new local government program for homeowners that provides grants or low-interest rate loans to perform energy efficiency upgrades. Size and terms of the grants or loans would be determined at a later stage, though existing programs in Boulder, CO, Minneapolis, MN, Milwaukee, WI, Dallas, TX and Chicago, IL focus on both the health and safety upgrades that are needed before energy efficiency upgrades are possible, as well as the energy efficiency upgrades themselves. They also often include no-sell or affordability covenants for those accepting the funds in order to preserve existing affordable housing. Programs should be designed in tandem with, and promoted to, low-income residents who are unable to access traditional financing for efficiency projects. Funding for such a program could come from a variety of sources, such as Community Development Block Grants (CDBG), HOME Investment Partnerships Program (HOME), Affordable Housing Trust Fund, or other local funds. ACEEE estimates 20 - 25% residential energy savings can result from this type of program, and it is especially impactful for improving the health, comfort, and safety of marginalized residents<sup>14</sup>

### *Energy efficiency “bulk buy”*

A bulk buy program is when a local government makes a bulk purchase of high efficiency products (heat pumps, LED light bulbs, etc.) and then provides them to citizens at a below market cost to fill gaps in existing rebate and incentive programs.<sup>15</sup> This could reduce the upfront cost of high efficiency heating and lighting systems for homeowners interested in reducing their energy bills. Such a purchase could be made in collaboration with other Montana cities to drive down cost and amplify benefits.<sup>16</sup> Ann Arbor, MI recently identified it as a top strategy to meeting their city’s carbon neutrality goal, with an estimated cost of \$3.92/MT of CO<sub>2</sub> reduced and strong health, economic, and equity co-benefits.<sup>17</sup>

<b>~\$4/ MT of CO<sub>2</sub> reduced<sup>18</sup></b>
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<sup>13</sup> Ibid.

<sup>14</sup> John O’Neill and Stefen Samarripas, “Missoula Residential Climate Action Strategies,” October 2, 2020.

<sup>15</sup> “[A2Zero: Ann Arbor’s Living Carbon Neutrality Plan](#),” April 2020.

<sup>16</sup> Bozeman has identified “Increase energy efficiency in existing buildings” as a top strategy in their recent climate plan. For more information, see: City of Bozeman, MT, “[Bozeman Climate Plan](#)” (City of Bozeman, MT, 2020).

<sup>17</sup> “[A2Zero: Ann Arbor’s Living Carbon Neutrality Plan](#),” April 2020.

<sup>18</sup> Ibid.

## Foundational Strategies to Consider

Each of the primary strategies are more feasible when paired with one or more of the foundational strategies below. As you evaluate the primary strategies above, consider these foundational strategies and what they would need to look like or include in order for Missoula to be successful. Foundational strategies include:

- Expand available financing options (variety of forms)
- 1-stop energy shop for residential and commercial properties
- Workforce development
- Expand access to low carbon and high efficiency materials

### *Expand available financing options (can take a variety of forms)*

- **Private financial institutions** can offer (or expand their offerings of) financial products for energy efficiency, renewable energy, and electrification.
- **Utilities** can offer on-bill financing or on-bill repayment. In on-bill financing, the utility incurs the cost of the upgrade and it is repaid in monthly installments on the bill. On-bill repayment is the same except that a third-party provides the up-front capital for the improvement.
- **The City of Missoula**, as a charter city, can establish PACE financing where a clean energy improvement is paid for via property taxes. The repayment is attached to the property rather than the individual. **Missoula County** may also be able to establish a similar program tied to property taxes.

### *1-stop energy shop for residential and commercial properties*

Technical assistance will be central to high compliance or participation rates for any of the above policies and programs. A 1-stop energy shop would centralize incentives and technical assistance to make it as easy as possible to implement energy efficiency measures. For example, a property owner could contact a 1-stop shop to schedule an energy audit, after which they would be connected to contractors to implement recommended upgrades and receive assistance identifying and applying for applicable incentives and financing options. Additionally, a 1-stop shop could raise community awareness about key issues such as electrification. For example, gas stoves are immensely popular. Recent research, however, has shown there are serious indoor air quality and health impacts associated with cooking with a gas stove.<sup>19</sup> Additionally, climate science underscores the importance of moving away from gas and propane infrastructure and towards all-electric systems for cooking, heating, and cooling. 1-stop shops are typically pursued in partnership with the local utility, though Missoula may be able to create a 1-stop shop independently with appropriate funding.

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<sup>19</sup> Sabrina Imbler, "Kill Your Gas Stove," *The Atlantic*, October 15, 2020. <https://www.theatlantic.com/science/archive/2020/10/gas-stoves-are-bad-you-and-environment/616700/>










### *Workforce development*























































The policies and programs, if pursued, will likely increase demand for a skilled workforce of energy service companies and contractors who can perform high-quality building audits and retrofits. Missoula will need to pursue partnerships between local energy efficiency businesses, Missoula College, and other relevant stakeholders to develop a robust clean energy workforce, as well as provide training opportunities for those already in the industry. Workforce development programs can and should diversify the clean energy workforce and support the hiring and training of those typically not employed in these jobs.










### *Expand access to low carbon and high efficiency materials*




















































Building materials are constantly evolving. As low-carbon, high efficiency materials (cross laminated timber, high efficiency windows, etc.) become more cost effective, it will be easier to incorporate them into projects. Additionally, this is a potential opportunity for supporting local entrepreneurs that focus on the manufacturing and distribution of these materials.

Appendix A: Overview of Strategies










KEY									
Type of Tool			Building Stage			Feasibility Analysis		Group Codes	
									OWN - Owner Occupied Housing RENT - Rental Housing SUB - Low Carbon Subdivisions LARGE - Large Buildings INNOV - Promotion + Innovation INCENT - Developer Incentives
Incentive/Financial	Regulatory	Programmatic	Blueprint	Construction	Operation	Next Life (Decon/Rehab)	Move ahead	Some reservations	





































Tool Name	Other Possible Outcomes (in addition to low-carbon buildings)	Implementation Lever	Could advance objectives of...	\$/MT of CO <sub>2</sub> e Estimate	Legality	Selected Precedents	Groups Discussing
<b>Expand financing</b>	<ul style="list-style-type: none"> <li>Economic development</li> </ul>	Public private partnership	   	N/A		Clearwater Credit Union, People's Gas in IL, Alabama Power	ALL
	Expanded financing can take a variety of forms. <b>Private financial institutions</b> can offer (or expand offerings) of financial products for energy efficiency, renewable energy, and electrification. <b>Utilities</b> can offer on-bill financing or on-bill repayment. <b>The City of Missoula or Missoula County</b> can establish financing programs where repayment is attached to the property rather than the individual.						
<b>One-Stop shop</b>	<ul style="list-style-type: none"> <li>Greater coordination</li> <li>Increased community awareness</li> </ul>	Public private partnership	   	N/A		Energy Trust of Oregon and Energy Works of Fort Collins, CO	ALL
	The 1-stop shop approach makes energy efficiency more accessible for a larger portion of the population (commercial and residential) by simplifying a complicated process. It typically requires a strong partnership with the local utility.						
<b>Workforce development</b>	<ul style="list-style-type: none"> <li>Economic development</li> </ul>	Public private partnership	   	N/A		Philadelphia, PA, Minneapolis, MN, and Raleigh, NC	ALL
	Developing a skilled workforce of energy service companies and contractors who can perform high-quality building audits and retrofits is a key component of any of the strategies in this table. Missoula will need to pursue partnerships between local businesses, Missoula College, and other relevant stakeholders. Workforce development programs can and should diversify the clean energy workforce.						
<b>Expand access to materials</b>	<ul style="list-style-type: none"> <li>Economic development</li> </ul>	Public private partnership	   	N/A			ALL
	Building materials are constantly evolving. Low-carbon, high efficiency materials are becoming more cost effective, and they present an opportunity to support local entrepreneurs that focus on the manufacturing and distribution of these materials.						
<b>Home energy label ordinance</b>	<ul style="list-style-type: none"> <li>Increased consumer awareness</li> <li>Economic development</li> </ul>	Local ordinance	   	N/A		Minneapolis, MN	OWN, RENT, SUB
	All home sales and rental leases must disclose the unit's energy report card at time of sale or lease.						
<b>Residential energy conservation ordinance (RECO)</b>	<ul style="list-style-type: none"> <li>Increased consumer awareness</li> <li>Economic development</li> </ul>	Local ordinance	   	N/A		Burlington, VT, San Francisco, CA, and Berkeley, CA	OWN
	RECOs require prospective sellers or buyers to perform a set of low-cost energy efficiency improvements. These ordinances could result in 10 - 20% energy savings for the average home.						
<b>Energy savings competition</b>	<ul style="list-style-type: none"> <li>Increased community awareness</li> </ul>	Public private partnership	   	N/A		Bozeman, MT, Fargo, ND	OWN, RENT, INNOV, LARGE
	An energy savings competition encourages owners and renters to reduce their energy consumption, all while building momentum and awareness at the ground level for greater energy awareness.						
<b>Retrofit assistance program</b>	<ul style="list-style-type: none"> <li>Preserve affordable housing</li> <li>Economic development</li> </ul>	New local government program	   	N/A		Boulder, CO, Minneapolis, MN, Milwaukee, WI, and Dallas, TX	OWN, RENT
	A retrofit assistance program would be a new local government program for homeowners and landlords that provides grants or low-interest rate loans for energy efficiency upgrades. They often include no-sell or affordability covenants to preserve affordability. Programs should be designed in tandem with, and promoted to, low-income residents.						
<b>Energy efficiency "bulk buy"</b>	<ul style="list-style-type: none"> <li>Economic development</li> </ul>	New local government program	   	\$4/MT		Ann Arbor, MI	OWN, RENT, SUB, LARGE
	A bulk buy program is when a local government makes a bulk purchase of high efficiency products (heat pumps, LED light bulbs, etc.) and provides them to citizens at a below market cost to fill gaps in existing rebate and incentive programs.						

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Incentive/Financial	Regulatory	Programmatic	Blueprint	Construction	Operation	Next Life (Decon/Rehab)	Move ahead	Some reservations	

Tool Name	Other Possible Outcomes (in addition to low-carbon buildings)	Implementation Lever	Could advance objectives of...	\$/MT of CO <sub>2</sub> e Estimate	Legality	Selected Precedents	Groups Discussing
<b>Eco-District</b>	<ul style="list-style-type: none"> <li>National recognition</li> </ul>	Public private partnership	   	N/A		Minneapolis, MN, Denver, CO, Boston, MA	INNOV
	District-level project that brings together area stakeholders to design and implement ambitious projects with outcomes in equity, resilience, and climate mitigation. Brings a unique branding opportunity with national recognition.						
<b>Promotion of flagship projects</b>	<ul style="list-style-type: none"> <li>Increased community awareness</li> <li>Marketing opportunity for leaders</li> </ul>	Public private partnership	   	N/A		Sarasota, FL	INNOV
	Contrasts Eco-Districts by being able to exist city or county-wide, rather than in one neighborhood. Flagship projects may represent a range of “going beyond what’s expected,” such as with a deconstruction plan, all-electric heating and cooling, or reducing embodied carbon. Could be recognized with an online “story map,” recognition placards, or building tours (online or in person).						
<b>Rental certification program with energy efficiency requirements</b>	<ul style="list-style-type: none"> <li>Increased comfort and health</li> </ul>	Local ordinance	   	\$30/MT		Ann Arbor, MI	RENT
	Establish a rental property registry and attach energy efficiency requirements to the process of acquiring or renewing a rental property owner’s certificate of occupancy. Provide financial incentives, technical assistance, and flexible compliance pathways to help property owners. Bozeman identified this as a key plan in their most recent climate action plan.						
<b>Renewable energy for renters</b>	<ul style="list-style-type: none"> <li>Economic development</li> <li>Increase clean electricity supply</li> </ul>	Public private partnership	   	N/A		Southern California Edison	RENT
	Increase renters’ access to clean energy via Missoula’s 100% clean electricity efforts, specifically a solar-ease expansion, green tariff, or utility owned community solar. <b>Solar-ease expansion</b> can expand focus to landlords and tenants, as well as develop a green lease that helps align tenant and landlord interests.						
<b>Energy use disclosure ordinance (benchmarking and transparency)</b>	<ul style="list-style-type: none"> <li>Increased data transparency</li> </ul>	Local ordinance	   	\$17-46/MT		Seattle, WA, Fort Collins, CO, and Philadelphia, PA	LARGE
	Require large building projects to disclose their energy use via an online data portal. This lays the groundwork for higher performance, as well as collects data to inform better decisions.						
<b>Building energy performance standards (BEPS)</b>	<ul style="list-style-type: none"> <li>Economic development</li> </ul>	Local ordinance	   	\$8/MT		Reno, NV, St. Louis, MO, Washington state	LARGE
	Sets energy or emissions standards that large multifamily and commercial buildings must meet by a certain date. Typically includes a long term policy goal as well as interim goals that must be met along the way.						
<b>High performance standards for new buildings via zoning</b>	<ul style="list-style-type: none"> <li>Economic development</li> </ul>	Zoning	   	N/A		Boston, MA, Cambridge, MA	LARGE
	In contrast to a BEPS, which applies to existing buildings, there is an opportunity to mandate higher performance standards for new buildings via zoning. The City or County could mandate buildings over a certain size adhere to higher performance standards (such as LEED certification or Energy Use Intensity benchmarks).						
<b>Mandatory retrocommissioning and/or tune-ups</b>	<ul style="list-style-type: none"> <li>Economic development</li> </ul>	Local ordinance	   	\$27/MT		Seattle, WA, Philadelphia, PA, Los Angeles, CA	LARGE
	Requires large buildings to perform a prescribed set of operations and maintenance improvements designed to reduce building energy use every 5 years. Rather than require a certain standard be met (like BEPS), it requires a <b>set of actions be taken</b> .						
<b>Voluntary stretch code</b>	<ul style="list-style-type: none"> <li>Increased training</li> </ul>	Local adoption of stretch code	   	N/A		Santa Monica, CA	LARGE
	A stretch code is a code or alternative compliance path that is more aggressive than base code. The state of Montana allows localities to adopt voluntary stretch energy building codes. They are most effective when paired with incentives.						



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<b>Density bonus</b>	<ul style="list-style-type: none"> <li>Increased density</li> </ul>	Zoning	   	N/A		Austin, TX, Seattle, WA	INCENT
	Provides additional density for projects that go beyond base building code.						
<b>Reduced parking requirements</b>	<ul style="list-style-type: none"> <li>Greater walkability</li> </ul>	Zoning	   	N/A		Flagstaff, AZ, Denver, CO, State of CA	INCENT
	Allows projects that go beyond base building code to provide fewer minimum parking spaces.						
<b>Impact and/or permit fees reduced</b>	<ul style="list-style-type: none"> <li>Reduced revenue for local government</li> </ul>	Zoning	   	N/A		St. Petersburg, FL, San Diego, CA	INCENT
	Reduces impact and permit fees for projects that go beyond base building code.						
<b>Permit process expedited</b>		Zoning	   	N/A		Albuquerque, NM, Salt Lake City, UT, Chula Vista, CA, Miami, FL	INCENT
	Provides a faster permitting process for projects that go beyond base building code.						
<b>Property tax abatement</b>	<ul style="list-style-type: none"> <li>Reduced revenue for local government</li> </ul>	Zoning	   	N/A		Virginia Beach, VA, Cincinnati, OH, Cleveland, OH, Baltimore, MD	INCENT
	Provides partial reduction in property taxes for projects that go beyond base building code.						
<b>TIF made available</b>	<ul style="list-style-type: none"> <li>Increased conversations about TIF</li> </ul>	Missoula Redevelopment Agency	   	N/A		Chicago, IL	INCENT
	Makes TIF funding available for projects that go beyond base building code.						