

Missoula's 100% Clean Electricity Options Report

Appendix IV



Energy Efficiency: What we can learn from other cities and options for Missoula

Primary Authors: Anna Weinberg, Abby Huseh, and Amy Cilimburg, Climate Smart Missoula

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Simply put, energy efficiency and energy savings is more than turning off lights and turning down the thermostat, and it's more than insulation and high efficiency windows. Using less energy spans buildings and building systems, transportation, industrial processes, land use planning and development. Here we focus on efforts to reduce electricity use (vs. all energy, especially transportation which at present has little electricity penetration), what we can learn from examples of effective efforts around the country, and what Missoula could do to accelerate energy efficiency and conservation.

What energy efficiency strategies are being pursued in other cities and states?

Beyond the cities, counties, and states that have committed to 100% renewable energy goals, many more have adopted plans to increase their energy efficiency. Saving energy is often one of the first steps identified in community sustainability plans; it's seen as the "cheapest clean energy" available that saves money and establishes a foundation for more ambitious carbon neutrality and clean energy goals. The American Council for an Energy-Efficient Economy (ACEEE) releases an annual [State Energy Efficiency Scorecard](#) that ranks states' energy efficiency based on factors such as city involvement, transportation, and utility participation.¹ ACEEE's top five states—Massachusetts, California, Rhode Island, Vermont, and Connecticut—all share commonalities in their plans and efforts including an emphasis on benchmarking and transparency.

Most of these states have energy consumption disclosure mandates for residential and municipal buildings that require them to share energy information with buyers, lenders, and lessees, as well as share information on the benefits of home energy audits to home buyers.²³ Many states and cities that have benchmarked their efficiency targets also provide annual reports that breakdown the community's current greenhouse gas inventory and energy use and reductions. This transparency can hold both private business owners and municipalities accountable for the efficiency of their buildings and infrastructure. Communities with effective energy savings programs also often have green building codes for new development and remodels that require a certain level of energy efficiency to be met. In San Antonio, Texas, for example, it is a formally adopted tenet of their sustainability plan to reduce the energy use of their buildings within the city from 116 to 90 kBtu per square foot by 2040.⁴

Effective energy efficiency efforts also contain rebates and other financial incentive programs. The focus of these programs varies depending on the city or state, but they all exist to motivate community members, business owners and city officials to make smarter decisions, whether purchasing appliances or building a new school, with saving energy and sustainability in mind. In California, there is a significant focus on sustainable construction and modernization of K-12 schools. The Governor's

¹ <https://aceee.org/state-policy/scorecard>

² <https://database.aceee.org/state/california>

³ <https://database.aceee.org/state/massachusetts>

⁴ <https://www.sasustainabilityplan.com/files/managed/Document/160/SA%20Tomorrow%20Sustainability%20Plan%20Adopted%2008%2011%202016%20S.pdf>

Strategic Growth plan provides \$100 million in grants for projects that include such attributes as using materials that promote energy and water efficiency or maximize the use of natural light. Other programs provide grants for technical assistance (e.g., energy audits, feasibility studies, performance specifications, project design) for local governments, hospitals, public care facilities, and schools, colleges and universities.⁵

Regardless of the specificities of these programs, a necessity for success appears to be cooperation from the local electricity providers. In all of ACEEE's top five ranked states, the main utilities have "decoupled" already or are in the process of doing so - this process removes the pressure on utilities to sell as much energy as possible by disassociating utility revenues and sales volume. Decoupling shifts away from the usual utility revenue model that discourages conservation and efficiency measures because it would decrease sales.⁶ Decoupling is by no means the only needed solution, and the devil can be in the details about how this is structured, but when done well, it can provide significant boost in energy efficiency funding and support.

We plan to update this Appendix with specific examples of financial investments that utilities around the U.S. have put toward energy efficiency programs.

What Cities have premier programs that Missoula could glean from or emulate?

Here are two case studies.

Fort Collins, Colorado

The city of Fort Collins, Colorado offers an example of the significant potential of energy efficiency to help meet clean energy and climate action targets. The community of Fort Collins has a similar profile to Missoula, such as its relative size, climate, demographics, and University presence. Fort Collins has a goal to reduce greenhouse gas emissions by 80% by 2030, and reach carbon neutrality by 2050. Their recent efficiency efforts include:

- An "Efficiency Works" program⁷ operated by Fort Collins Utilities (a municipal electric utility that serves over 60,000 residential customers) that is a one-stop-shop for home efficiency upgrades. Residents receive direct assistance tailored to their home and financial situation, and any upgrades chosen are performed by contractors approved and vetted by the utility. Residents receive an energy audit which informs three options of efficiency improvement "packages". They are assigned an "Energy Advisor" who connects them with available rebates and financing options, including low-interest loans that can be repaid via their monthly utility bill⁸. This program has significantly increased the number of residents choosing to move forward with home energy efficiency upgrades.
- In 2018 the City was awarded a Bloomberg Mayors' Challenge award⁹ to address energy efficiency in low- and moderate-income rental housing. The goals are to attract third-party capital to establish a fund for incentivizing energy efficiency upgrades and to encourage participation of property managers, renters, and capital providers through creative and engaging communications strategies.

⁵ <https://database.aceee.org/state/california>

⁶ <https://www.c2es.org/document/decoupling-policies/>

⁷ <https://www.fcgov.com/utilities/residential/conserves/home-efficiency-program>

⁸ <http://www.fcgov.com/utilities/residential/conserves/financing>

⁹ <https://mayorschallenge.bloomberg.org/ideas/fort-collins/>

- Fort Collins was one of 50 communities across the country that participated in the [Georgetown University Energy Prize competition](#). As part of this effort, the city engaged residents, municipal employees, and businesses in energy-savings competitions via the Lose-A-Watt web application.¹⁰ The city made energy-use data more readily available to residents through this challenge and continues to make data access a priority via a “monitor my use” web tool¹¹.
- The city has a voluntary program, ClimateWise¹², to support and incentivize businesses to reduce energy use, among other sustainability activities.

Burlington, Vermont

Burlington, known for being the first U.S. city to run on 100 percent renewable energy¹³, also has a number of successful energy efficiency initiatives. Burlington’s municipal electric utility, BED, works closely with the city to implement these efforts. Burlington’s Climate Action Plan (2014) includes 39 strategies in eight sectors, including seven specific strategies in the Building Energy Efficiency sector¹⁴:

- Create a "Green Roof" policy and incentive program: Create incentives to encourage that all new roofs at or under 30 degree-pitch, both private and public, have to be vegetated.
- Install Advanced Metered Infrastructure (AMI): BED is in the process of installing smart meters in all buildings in the City of Burlington. Smart meters will provide data to BED and its customers in 15 minute intervals and will offer two-way communication. These data can then be used to achieve increased efficiency.
- Implement a deep energy efficiency program for government buildings: Perform deep energy efficiency improvements in all municipal buildings. Deep energy retrofits would include extensive renovations to existing structures that use the latest in energy-efficient materials and technologies and result in significant energy reductions.
- Implement the PACE Program for residential properties and explore expansion to commercial properties: The PACE program will allow residential property owners to access long term municipal financing to make eligible energy efficiency and renewable energy improvements to their buildings. By opting into a special tax assessment district, property owners pay for these improvements via property taxes over a period up to twenty years.
- Require new commercial construction to follow Core Performance guidelines: A program offered by BED, and Vermont Gas. Core Performance is a prescriptive guide to reduce energy use in commercial buildings by 20-30%.
- Require new residential construction to be Vermont Energy Star for Homes (VESH) qualified: VESH are designed and built using best practices to save energy by reducing air leaks and thermal bypass, and by requiring high efficiency heating and appliances.
- Revise and implement the Time of Sale ordinance: Build upon the existing residential rental housing time of sale energy efficiency ordinance by applying it to all residential and commercial buildings. Furthermore, it proposes that, as a condition of sale, all buildings must receive an energy inspection and rating that is available to prospective buyers.

ACEEE’s rankings database is also useful for comparing energy efficiency programs in other cities: <https://database.aceee.org>. Every other year, ACEEE ranks the largest U.S. cities on their energy efficiency policy and program efforts and provides recommendations for ways that the cities can

¹⁰ https://www.fcgov.com/fortzed/files/fortzed_lose-a-watt_final_05-21-2018.pdf

¹¹ <https://www.fcgov.com/utilities/manage-your-account/monitor-my-use/>

¹² <https://www.fcgov.com/climatewise/>

¹³ <https://www.burlingtonelectric.com/our-energy>

¹⁴ <https://cap-burlingtonvt.opendata.arcgis.com/pages/energy-efficiency-in-buildings>

improve their performance in a variety of policy areas. They also have added some smaller communities who are making energy efficiency a priority. Be sure to click on each tab for relevant information: Local Government Operations, Community-Wide Initiatives, Buildings Policies, Energy & Water Utilities, and Transportation. We can look to other communities, such as [Boulder CO](#), [Charlottesville VA](#), [Park City UT](#), or [Madison WI](#) for more specific examples of what communities are doing, hope to do, or need to do. Note that some of the ACEEE information for these smaller communities is dated and connecting directly with these cities would likely offer more up-to-date information.

What energy efficiency strategies are needed or most relevant to Missoula?

Our Options Report suggests energy efficiency could offset approximately 15% of our 100% renewable electricity goals, or 45,000 MWh. It's clear that reaching this goal would require a diverse number of approaches, some built upon frameworks that already exist. For example, the City of Missoula has benchmarked sustainability goals that include reducing energy use in city buildings and the city fleet that have been successful so far.¹⁵

Benchmarking and tracking electricity reduction

In order for that work to progress, Missoula needs updated greenhouse gas emissions inventories and energy audits to effectively track our goals. This will also require us to build active data-sharing partnerships within Missoula, especially with our main energy provider, NorthWestern Energy. Transparency from NorthWestern Energy will be critical as we develop bolder efficiency targets, and cooperation with the city and county will require expansion of current efficiency incentive programs.

Overall, while Missoula is currently lacking the funding and capacity to make major moves on energy efficiency, its potential as a cost-effective option for helping reach our 100% clean electricity goal suggests that we would be smart to pursue an ambitious energy efficiency strategy. In addition to the models described here, there are many local and national resources for energy efficiency measures and best practices; a handful of these are listed at the end of this Appendix.

Energy Efficiency Strategies and Program Elements

As above case studies illustrate, a combination of energy efficiency strategies are needed to achieve meaningful reductions in energy use across a community. Possible strategies for Missoula, and examples of actions for each, are described in more detail below. To fully develop and implement such efforts and programs it is clear that additional staffing capacity is required. Missoula would benefit from dedicated funding of an energy efficiency coordinator (within or outside local government).

Here we describe several different categories of energy efficiency strategies and examples of each, including those already happening in Missoula.

Policy/regulatory strategies¹⁶

These approaches focus on implementation, outreach, and enforcement of building efficiency-related policies.

¹⁵ <http://www.ci.missoula.mt.us/1709/Conservation-Climate-Action-Plan>

¹⁶ <http://publications.wri.org/buildingefficiency/#sec2>

- **Building energy stretch codes.** Building developers that voluntarily adopt these higher energy-efficiency/green building standards receive rewards/incentives, e.g., expedited permitting. This is a common strategy that has some promise here.
- **Minimum energy efficiency standards for multifamily buildings.** For example, [Boulder, Colorado's SmartRegs](#) program requires all licensed rental housing to meet a basic energy efficiency standard, or face penalties.
- **Increase transparency and require disclosure of energy usage.** As mentioned previously, communities may decide to implement policies requiring greater transparency around energy use data. This might include benchmarking and public disclosure requirements, especially for large commercial buildings/large energy users (the city of Orlando, Florida¹⁷ is one example), and energy-use disclosure requirements upon building sale or lease.
- **Enabling Property Assessed Clean Energy (PACE) legislation and/or other city-led funding mechanisms,** such as energy special districts.

Behavior-focused programs and voluntary measures

These types of programs focus on community education, engagement, technical assistance, and incentives around voluntary energy-saving activities. Some of the same objectives of the above policy/regulatory approaches may be able to be achieved via community partnerships that pursue actions such as:

- **Outreach and engagement.** A wide variety of activities can fall under this category, including:
 - Web-based tools or applications that track and aggregate energy use data (including support for marketing, outreach and incentives). Note that Climate Smart has one of these in development (following a 2017 pilot program) and are looking for financial and technical support to get it launch-ready.
 - A one-stop-shop “energy office” that provides businesses and residents with step-by-step assistance and implementation of energy efficiency upgrades.
 - Energy stories/profiles of local energy projects and other storytelling and creative communications. Climate Smart has started an “[Energy Smart Story Map](#)” project that we plan to further develop.
 - Targeted outreach efforts such as those with students via the ASUM Renter Center.
 - Micro-local efforts such as those encouraged by [Transition Streets](#).
 - Volunteer-led efforts such as the [Green Impact Campaign](#).
- **Energy-savings competitions.** There are many examples of these types of programs. They may target residents, workplaces, students, or other groups. Participants sign up, track their energy usage over time, and receive information and resources to encourage energy reductions. Ideally this would be combined with a web-based application and program (see above).
- **Incentives and rewards.** For businesses especially - e.g., Fort Collins’ EnergyWise program. Promote energy performance contracting for larger buildings.
- **Voluntary energy-use disclosures.** E.g., encouraging Energy efficiency information available on sale of homes & rental agreements. **Targeted outreach and education:** identifying and targeting high-savings potential efforts can be a valuable approach. This can mean outreach to particular groups of participants (e.g., the highest energy users, or nonprofits/faith communities that work with low-income residents) or education around particular low-cost/high-return actions (e.g., a campaign that focuses on switching out all LED lights, or installing programmable thermostats).

¹⁷ <http://www.cityoforlando.net/greenworks/building-energy-and-water-efficiency-strategy/>

Partner with our NorthWestern Energy and/or Missoula Electric Co-op to expand energy-efficiency programs and funding

This strategy merits its own category. There is great potential for collaboration between Missoula's main investor-owned utility, NorthWestern Energy, the City, County, and community when it comes to energy efficiency. Our local government/community could work with the utility to offer targeted rebate programs for upgrades identified as priorities. Until 2018, NorthWestern Energy (NWE) did offer residential rebates for high-efficiency natural-gas boilers and furnaces, insulation, and programmable thermostats. Those rebates were funded through the natural gas/electric supply rates paid by customers on their monthly bills as long as those rates met specific cost-effective/low-cost requirements¹⁸. Because of the current low cost of natural gas, the utility has stopped offering residential rebates for the time being. Increasing community awareness and use of these programs could possibly make them economically viable once again. Additionally, if NWE could receive a larger reimbursement for the costs of offering energy efficiency programs, rebates could be reintroduced. Partnering with NWE or Missoula Electric Co-op to advocate for these funding sources from state or federal levels is worth considering. Energy use data sharing is another realm where utility cooperation would be extremely valuable: making it easier for residents and businesses to track and understand their energy use over time, plus improving the means for the city/community to aggregate and track collective energy use. Finally, funding mechanisms like on-bill financing for energy-efficiency upgrades would remove financial barriers, though this would likely be a challenge to put in place.

Develop new and expand existing funding for energy efficiency

Growing the amount of funds available as well as the variety of different funding options is key to the success of energy efficiency programs. Funding options include:

- **PACE.** Property Assessed Clean Energy is one mechanism for financing energy efficiency. PACE needs to be enabled at the state level through legislation, then a local district (at the city or county level) would need to be created. Efforts to pass a Commercial PACE bill are underway at the 2019 Montana legislature (more via Northern Plains Resource Council [here](#)).
- **On-bill financing** offered by the utility or co-op.
- **Private/third-party financing.** E.g., Missoula Federal Credit Union's Home Energy Loan or other commercial bank loans.
- **Private, state, and federal grant funding.** E.g., U.S. Department of Energy, Bloomberg Mayor's Challenge Award, and many others.
- **State-administered financing,** such as Montana DEQ's Alternative Energy Loan Fund.
- **Local energy special districts.** Local government can establish special taxing districts to create a fund for energy efficiency and clean energy, available to all members of the district. This may be a promising funding model for Missoula, but how it is structured and legal questions regarding purchasing of bonds need to be determined. This is an ongoing conversation in Missoula.
- **Other local tax options** as enabled by state law or local government (e.g., using gas tax or tourist tax to fund sustainability programs).

Develop new or expand existing programs of efforts for energy efficiency, especially low-income

NeighborWorks Montana, The Human Resource Council District IX, Climate Smart Missoula and Home ReSource are working together to grow a program that provides coordinated services, including weatherization and energy efficiency assistance, to low-income area residents.

¹⁸ https://missoulian.com/opinion/columnists/northwestern-energy-offers-efficiency-programs/article_b3e50c69-4af2-575f-a1c8-ff637bea605f.html

There are also opportunities to initiate targeted programs that utilize volunteers and target one specific energy saving opportunity. For example, Missoula could start a program to reduce heat loss from windows via [Window Dressers](#). We could initiate an effort to help people remove air conditioner window units at the end of the summer, reinstalling them in the early summer with awnings or shade to significantly improve their operating efficiency. We can also increase our efforts to encourage or provide trees and shrubs for shade to decrease the need for air conditioners. The possibilities are many.

Suggested priority strategies for Missoula

Many of the strategies discussed above are options for Missoula and should be considered as part of achieving the goal of 100% clean electricity. Based on successful examples from other communities, here are three tangible priority actions:

1. Develop a community-wide campaign that focuses on particular high-return/short-payback upgrades first—low-hanging fruit that offers easy “wins”. E.g., switch lighting to LEDs, especially for large nonresidential buildings. Or for residents, Window Dressing or other weatherization programs. These would involve targeted outreach and messaging to businesses and residents.
2. Create and staff a one-stop shop/resource office for energy efficiency & clean energy. Implement a simple process, e.g.: Energy Audit -> recommendations prioritized by impact/payback -> list of vetted contractors -> follow-up and accountability -> documented savings.
3. Finalize development of web-based engagement and energy-use tracking tool for residents.

Resources

[Northwest Energy Coalition](#): Climate Smart Missoula is a member. NWECC is a coalition of 100 environmental, consumer, civic, and human service organizations; progressive utilities; energy efficiency and renewable energy businesses; and individuals. This organization may be a helpful resource, especially in advocating with our local utility and sharing best practices in energy efficiency programs.

[World Resources Institute: “Accelerating Building Efficiency: Eight Actions for Urban Leaders”](#) This is a comprehensive document with many useful strategies for building energy efficiency.

American Council for an Energy Efficient Economy (ACEEE) [database and ranking](#) of city energy efficiency policies and initiatives. See also ACEEE Report, Nov. 2018: [Reducing Waste through Municipally-Led Behavior Change Programs](#). A review of 50 locally led behavior change programs, with best practices and recommendations to help local governments launch their own behavior change programs.

[Georgetown Energy Prize Competition](#): From 2015-2017, 50 communities implemented creative energy efficiency programs. They offer successful examples and resources.

[Energy Trust of Oregon](#) is a robust collaborative organization that provides information, cash incentives and contractor connections to help a range of customers use less energy, generate renewable power and protect the environment.