



Benchmarking Gaps and Analysis for Small, Medium, and Rural Communities

October 2019



ne ep

Table of Contents

Purpose	1
Background	1
What is Building Energy Benchmarking?	1
Why Benchmark?	1
Benchmarking Benefits By The Numbers	2
Current Benchmarking Efforts	2
Barriers to Benchmarking in Small, Medium, and Rural Communities	3
Awareness Barriers	4
Opportunity	4
Resource Barriers	4
Opportunity	4
Commitment Barriers	5
Opportunity	6
Exemplary Benchmarking Efforts in SMR Communities	7
Crafting an Appropriate Benchmarking Policy	8
Background	8
Process Considerations	8
Consideration #1 Establishing Goals	8
Consideration #2 Engaging Stakeholders	8
Consideration #3: Developing the Policy	9
Benchmarking Ordinances – Finding the Right Fit for your Community	
Consideration #4: Training and Compliance Measures	
Residential Labeling	
What is Residential Labeling?	
Labeling Program Structure	
Voluntary:	
Mandatory:	
Summaries of City-level Residential Labeling Ordinances	
Berkeley, California	
Montgomery County, MD	
Low Income Subsidies	

ne ep

Additional Resources for Policy Development:	15
Benchmarking and Labeling as a Part of Comprehensive Energy Reduction Plan	15
Resources	16
EPA Portfolio Manager	16
Open Access Benchmarking	16
Conclusion	17

Acknowledgements

This report reflects the invaluable contributions of multiple individuals.

We would like to recognize the report's lead authors, Samantha Lor and John Balfe. Several NEEP staff served key roles in the development of the report including Samantha Caputo, Senior Policy Analyst; Bryan Evans, Intern; and Carolyn Sarno Goldthwaite, Director of Buildings and Community Solutions. Formatting and edits were provided by Lisa Cascio, Director of Partner Engagement and Victoria Salvatore, Marketing Associate.

NEEP would like to recognize and thank members of its ACE Project Advisory Committee for their participation in reviewing this report and providing input into the creation of this document. These individuals include Nathan Cleveland, Programming Services Officer, RI OER and Carrie Gill - Chief, Program Development - RI OER

About NEEP

Founded in 1996, NEEP is a non-profit whose goal is to assist the Northeast and Mid-Atlantic region to reduce building sector energy consumption three percent per year and carbon emissions 40 percent by 2030 (relative to 2001). Our mission is to accelerate regional collaboration to promote advanced energy efficiency and related solutions in homes, buildings, industry, and communities. We do this by fostering collaboration and innovation, developing tools, and disseminating knowledge to drive market transformation. We envision the region's homes, buildings, and communities transformed into efficient, affordable, low-carbon, resilient places to live, work, and play. To learn more about NEEP, visit our website at http://www.neep.org.

Disclaimer: NEEP verified the data used for this white paper to the best of our ability. This paper reflects the opinion and judgments of the NEEP staff and does not necessarily reflect those of NEEP Board members, NEEP Sponsors, or project participants and funders.

©Northeast Energy Efficiency Partnerships, Inc. 2019

Purpose

Energy management poses unique challenges in small, medium, and rural (SMR) communities due to resource, staff, and capacity constraints. In order to be successful, energy efficiency policy and program implementation in these areas must be crafted with an understanding of these challenges. This report seeks to account for these specific barriers, described below, and provides information related to a key first step in the energy management process – building energy benchmarking. Similar to their larger peers, SMR communities must establish a baseline energy consumption in order to make advancements, implement energy plans, and prioritize building projects. This report catalogues policy considerations, best practices, and lessons learned from benchmarking policy adoption to assist SMR communities with their benchmarking initiatives. It is our hope that this report will assist energy champions in SMR communities (energy committee members, sustainability staff, building committees, facility managers, and other local government staff members) with their energy management efforts.

Background

What is Building Energy Benchmarking?

Building energy benchmarking is the process of measuring the energy performance of buildings and comparing this data to the performance of similar buildings, exemplary buildings, their building at a previous point in time, or comparison to state and local energy codes. Building energy benchmarking can be done for a variety of reasons but at its core, it allows building owners to track their energy usage, in turn allowing them to see where improvements can be made that will increase their building's energy efficiency and monetary savings. Benchmarking is a key first step that provides a deeper understanding of your building's needs and helps inform a plan that works for you. And remember, you can't manage what you don't measure.

Why Benchmark?

There are a number of reasons that benchmarking is a worthwhile practice for building owners, ranging from organizational benefits to community-wide benefits. Energy benchmarking can lead to reduced energy costs, environmental and sustainability improvements, and indirect benefits such as job creation. Benchmarking and related energy efficiency improvements can also improve external relations through specialized marketing indicating an organization's commitment to green initiatives. As more communities commit to energy and carbon reduction goals, benchmarking is a simple and necessary step to achieve these goals by providing the data needed to support energy efficiency improvements and a baseline from which to measure. Because buildings tend to be the largest energy users within communities, analyzing their energy efficiency and reduce overall greenhouse gas emissions. Larger cities across the country (New York City, Chicago, Boston, etc.) have historically been very active in benchmarking their buildings while smaller, more rural communities have generally been slower to adopt these initiatives. Further, twenty percent of Americans live in rural areas (Census Bureau 2017), so energy efficiency measures, such as the adoption of benchmarking and related policies, in these areas can make a very important contribution to greater statewide or national efforts.

Benchmarking not only provides a direct route to understanding building energy usage, it is also a stepping stone towards long-term energy efficiency improvements. According to the U.S. EPA, energy can account for as

much as 10 percent of a local government's operating budget.¹ Energy improvements need not be large capital investments. Simple fixes from improving building operations to taking measures such as better insulation or more efficient appliances can lead to significant savings as well. First and foremost, it is crucial to know what remedies need to be made. As building owners benchmark, they learn that information. They are able to compare how well or how poorly they are doing in relation to similar buildings, thus providing further motivation to improve energy efficiency or validation (through data) to show what progress has been made. Additionally, benchmarking allows owners to prioritize buildings in their portfolio that are most in need of energy efficiency upgrades – both capital improvements and behavioral changes. Although benchmarking does not directly make these changes that lead to savings, it is the vehicle that sheds light on what needs to be done.

As touched upon, there are a multitude of benefits that benchmarking can have on an area with no exception to SMR communities. However, SMR communities can have various unique barriers that make it hard to integrate benchmarking into their areas.

Benchmarking Benefits By The Numbers

A 2012 U.S. EPA analysis of 35,000 benchmarked buildings found average annual energy savings of 2.4 percent. The analysis also found that buildings which had benchmarked for three straight years saved an average of seven percent over the course of that time (<u>source</u>).

Current Benchmarking Efforts

Benchmarking is taking place on various levels throughout the region. Most simply, a building owner or manager can go through this process with their own buildings on a voluntary basis. In other instances, such as in South Portland, Maine, certain building owners are required, via a municipal ordinance, to benchmark their facilities and report the data to the city. Additionally, many states in the region have policies that require state-owned buildings to continually benchmark their buildings. Municipalities and states that have enacted these types of policies intend to use the data gained through this process to drive actual energy efficiency improvements through complimentary policies and programs.

¹<u>https://www.epa.gov/sites/production/files/2015-08/documents/ee_municipal_operations.pdf</u>

nc cp



This map shows which cities, counties, and states have adopted benchmarking policies across the country (Credit: IMT) Disclaimer: The map above may not be a complete representation of all benchmarking and labeling policies across the country.

Barriers to Benchmarking in Small, Medium, and Rural Communities

Small, medium, and rural communities face a number of challenges when considering benchmarking. The biggest barrier to benchmarking in small, medium, and rural communities is related to staffing. Many SMR communities have limited resources, small municipal government staff, and limited to no environmental/sustainability department. Even when there is a staff member responsible for energy management, that person usually has a multitude of other duties. In that scenario, energy tends to be a lower priority. Crafting a benchmarking policy takes careful consideration, significant stakeholder engagement, and a committed champion advocating for these efforts. Under the circumstances often found in SMR communities, it is challenging to make significant progress towards the enactment of benchmarking policies, but an engaged community can make a world of difference. There is also another set of barriers that pertains specifically to these communities. Location, monetary resources, and issue awareness can all be huge hurdles for SMR communities trying to become more energy efficient.

Awareness Barriers

Rural communities may have limited or no access to platforms that give information and resources for energy efficiency policies such as benchmarking. Lack of exposure or access to online marketing because of limited internet capabilities or lack of access to workshops can make it extremely difficult for SMR communities to be aware of the steps they need to take to become more energy efficient. Because it may be hard to access information in these communities, this could lead to widespread misunderstanding or skepticism towards assistance programs and other available options. In smaller communities, citizens often rely on word of mouth over proactive searches for information, so providing public awareness can be difficult.

Opportunity

The solutions to awareness barriers within SMR communities involve various types of outreach. First and foremost, it can be very beneficial for smaller communities to partner with state governments or surrounding communities to create larger networks with the purpose of exchanging ideas, best practices, and policy resources. These stakeholder meetings facilitate information and resource interchange to aid in the learning process. An example of this can be seen in Vermont where Vermont Energy Investment Corporation (VEIC) convened a series of stakeholder meetings and a "North Country Energy Efficiency Value Chain Workshop" in 2018. In addition to collaboration with other groups, access to information is also very important for SMR communities. Webinars and community education workshops can be a great way to access this information. Social media and local volunteers can assist in increasing community engagement and awareness in these types of events.

Resource Barriers

In addition to awareness barriers, some SMR communities may also face resource barriers due to geographic isolation of their community. In certain areas of the region, such as extreme northern parts of New Hampshire or rural West Virginia, for example, access to broadband presents a significant barrier to benchmarking due to the lack of access to online benchmarking programs and easy access to utility data. Physical distance from resources can also contribute to the lack of a qualified workforce able to take on energy efficiency improvement projects. Lack of qualified workforce can be a huge barrier in and of itself because when the workforce doesn't have a solid understanding of benchmarking, neither will the community. For SMR communities, an additional barrier is contractors who are unwilling to make the journey to serve rural areas.

Bringing in outside assistance to provide outreach and training are key to successfully implementing benchmarking policies in SMR communities. Due to factors mentioned above, these communities may struggle to provide funding and support to outside entities to assist with this process. For example, other cities with benchmarking ordinances have utilized local contractors to aid with the benchmarking process or to provide training to building owners. When location of SMR communities and budgetary constraints are combined, the barrier becomes more insurmountable.

Opportunity

In order to grant more resource opportunities to SMR communities, it is key to create a network of community organizations, program administrations, and energy contractors. Workforce participation in rural areas improves

by bringing these groups together. A great example of a program such as this is New Hampshire and Vermont's "Vital Communities' Weatherize Upper Valley Program", which is outlined in the table that follows.

In addition, training programs for local workforce and residents to assist them in completing energy efficiency benchmarking programs in their own communities can be equally as effective in making strides towards greater energy efficiency. Creating incentives for laborers to work in remote areas can serve as another potential solution to workforce inaccessibility. This could include lodging, travel support, or public grant funding to cover worker costs when travelling to rural communities to do work.

Another potential solution is sharing an energy coordinator position across several towns who can facilitate resource sharing and work towards creating an appropriate benchmarking policy. This can be a good way to compare and exchange resources between communities, and to streamline the process for making change. An example of this is the "Circuit Rider" program run by the Adirondack North Country Association. For more information on this program, see the table below.

Program	Vital Communities' Weatherize Upper Valley Program	Adirondack North Country Association's "Circuit Rider" Program
Location	New Hampshire and Vermont	Northern New York
Description	Enlists community volunteers to create local outreach teams that partner with contractors for discounted services. Makes the vendor selection process easier for participants, allowing them to access the Home Performance with Energy Star rebates offered by Efficiency VT and the NHSaves program. Resulted in 100 weatherization projects in just six months!	Energy Circuit Riders are long- standing residents of the North Country who have served in a leadership capacity including public facilitators, researchers, technical experts and builders. These citizens work with municipal officials to help plan, finance, and implement energy-savings projects and to support informed decision making. This initiative is supported through a Cleaner Greener Communities grant from NYSERDA.
Read More	https://vitalcommunities.org/energy/weatherize/	https://www.adirondack.org/energy- circuit-riders

Commitment Barriers

One of the greatest barriers to benchmarking in SMR communities is commitment from within the existing structure of the community. Enacting a benchmarking ordinance can take a lot of time and without a number of dedicated individuals, this task can be far too great for one person to handle. Inevitably, the ordinance will be met with some level of resistance from building owners, real estate professionals, or others who fail to see the value and relative ease of completing the benchmarking process.

Opportunity

The best solution to this barrier is to work together to form a community of individuals and groups dedicated to enacting a benchmarking policy and reducing energy efficiency. In order to do this, it can be very beneficial to take advantage of organizations that can provide support and reduce individual burden of communities.

Although SMR communities may face barriers that larger areas don't, they can also find strengths in being smaller. SMR communities, unlike large cities and metropolitan areas, are more nimble when it comes to handling challenges that arise within the process. In addition, these groups are able to give more attention to citizens who may have issues or questions on the change. Giving quick and personal answers to these people makes the movement one that people – and not only government and utilities – can get behind, which can lead to greater success.

For more information about barriers to energy efficiency in SMR communities, visit the Island Institute's report.

Collaborating at a Regional Level for Benchmarking

Hennepin County Building Energy Benchmarking Collaborative

Hennepin County (MN) took a regional approach to benchmarking by getting many communities to go through the policy crafting process together. This allowed them to share information on what successes they are having, what methods of policy creation are working, and what barriers they are facing within their process. Since smaller communities many times do not have staffing or resources dedicated to energy efficiency initiatives, Hennepin County provides an easy way for them to make educated decisions and purchase resources "a la carte" as they need. At various points during a community's benchmarking process, Hennepin County has different services to offer including:

Research – After a city expresses interest in an energy disclosure policy, Hennepin County will set up a meeting to discuss the community's goals and will collect data on the area's buildings.

Education – After the city meets with community stakeholders, utilities, etc. and passes an ordinance, Hennepin County will connect them with ENERGY STAR Portfolio Manager Resources.

Disclosure – Once the building owners are informed of the policy and benchmarking data is received, Hennepin County will post the city's energy data to its website

Once this process is complete, it allows communities to use their data to make appropriate changes to the building stock in promotion of energy efficiency in efforts to reduce consumer consumption.

More information about this program is available on the <u>county's webpage</u>.

Exemplary Benchmarking Efforts in SMR Communities

The information that follows is based on case studies and information from SMR communities. For the purpose of this report, SMR communities are defined as those that are not within or directly related to large metropolitan areas. These communities have a direct link and stake in policymaking. With the right level of information sharing and commitment, any community can implement a benchmarking ordinance. There is a significant opportunity for building energy benchmarking in SMR communities due to the close knit relationships between citizens, business owners, and local government alike.

The following chart outlines model benchmarking and energy efficiency efforts from two small communities in the United States:

Location	Milan, Minnesota	Bloomfield, Iowa
Community Type	Small farming community with a population less than 1,000 people	Small town with a population of roughly 2,700 people
Model Policy	"Sustainable Energy Utility": A community- based model that provides a point of contact for community members to learn about and implement energy efficiency (Aimed at long-term energy usage decrease as a community)	Building Benchmarking Program: Part of a larger goal to reach total energy independence by 2030. Energy dependency initiative includes free energy auditing and modest efficiency upgrades in homes, occupancy sensors in city buildings, and LEDs in school buildings.
Implemented	2009	2019
Who Led the Movement	Greater Milan Initiative (Nonprofit) partnered with Otter Tail Power Company, the state, and local contractors to provide cost-effective improvements to its community center	The city's Community Development Director, Chris Ball, compiled energy use figures going back ten years and put the latest year of data into EPA's Portfolio Manager software to create profiles for 850 of the city's 1,100 single-family homes
How	Utilizing grants from state, local, and private organizations, Milan set an example to the rest of the community by renovating and transforming an 1915 building into a model energy efficient community center	The Bloomfield City Council voted to make the data available on an online map. Gave access to buildings' Energy Use Intensity, the past 12 months of gas and electricity usage and the bills, creating a way for community members to make informed decisions when renting or buying homes.
Important Steps	Led community education workshops, assisted residents with low-and no-cost energy efficiency upgrades, and shared its results with the Milan community	Created a way for community members to actually see the impact and gain there is in making their homes more energy efficient
Key Takeaways	Cities and other public entities seeking energy improvements are highly encouraged to consult with their local gas	The city owns both its electric and gas utilities, which gives it more leeway than

	or electric utility - utilities can help with building assessments and may provide rebates for energy efficiency improvements	most communities to chart its own course on energy issues
Progress Since Implementation	Milan continues to seek energy improvements and is working with CERT to explore clean energy alternatives, such as wind energy and a district heating system	The project is very new, but promising. The city government has allocated \$121,000 to get the program underway
Read More	Milan Minnesota	Bloomfield Iowa

For more information about SMR communities benchmarking, see the US Conference of Mayors.

Crafting an Appropriate Benchmarking Policy

Background

Building energy benchmarking ordinances have predominantly been enacted in larger cities across the country. To date, South Portland, Maine is the smallest city within the region to adopt such a policy. Unfortunately, there is no "one size fits all" approach to adopting a benchmarking policy but there are some common best practices and considerations that must be made. The sections below are meant to provide information specific to the needs of SMR communities. Additional resources, including model language, are included at the end of the section to be used during the development phase of the ordinance.

Process Considerations

Consideration #1 Establishing Goals

By strategizing and thinking about the goal of the program, the "why" of the benchmarking ordinance will be more easily understood by other stakeholders. It will also help inform how data is collected and its main uses.

Example goals:

- Benchmarking can be used to:
 - Establish a municipal goal for reducing energy and carbon
 - o Track progress towards those goals
 - Enable building owners and managers to take control of their energy usage
 - Obtain data needed by the town to craft other policies, programs, challenges, educational events, etc. that directly impact energy consumption in buildings
 - o Identify which building types require the most attention

Consideration #2 Engaging Stakeholders

Building a team and getting buy-in across a broad spectrum of stakeholders in the community is key to the successful development and implementation of a benchmarking policy. It is crucial to include those that may be in opposition to the ordinance early in the process so their concerns can be heard and addressed. This engagement should continue throughout the process from the very beginning stages through to implementation and training.

ne ep

Examples of who should be included: (varies based on local government structure and goals of ordinance)

- Local government officials city council, mayor, town manager, town planners, sustainability coordinators/managers, etc.
- Property owners residential, commercial, industrial, hospitals, colleges/universities, etc.
- Real estate developers, property managers, etc.
- Local utilities
- Supporting organizations NGO's, advocacy groups, local leaders, etc.

Consideration #3: Developing the Policy

Crafting the appropriate policy is an involved process that will inevitably undergo many iterations until all stakeholders are in agreement. Below are some of the key questions to be discussed as a part of this process.

- What building types will be included?
 - The building type (e.g. residential, commercial, industrial, public, etc.) that consumes the largest amount of energy or is responsible for the largest amount of greenhouse gas emissions, should be required to benchmark under the ordinance.
 - Utilize town assessor data to analyze the number of buildings per building type (i.e. commercial, residential, public, multifamily, etc.). Building stocks in rural communities may be predominantly comprised of single-family homes, therefore a residentially-focused policy may make the most sense.
- What is the reporting schedule for each building type?
 - Included within the policy is a schedule of reporting deadlines that specifies when buildings of a certain square footage or use type have to benchmark and report their energy information. The schedule also specifies information related to public disclosure of the benchmarking data such as when data will be made available, in what format, and what type of data will be shared.
 - In year one, a municipality typically leads by example requiring benchmarking for public buildings only. This includes buildings such as town hall, schools, police and fire stations, public works, and others that are owned and operated by the city/town.
- What square footage threshold will be used?
 - This is another area where it is key to utilize the town assessor data. In larger cities, 30,000 50,000 ft² thresholds are common. Lowering the threshold over the span of a few years is another common best practice (e.g. in year one, all buildings over 30,000 ft² are required to benchmarking. In year two, all buildings over 20,000 ft², and so on). Since this report is aimed at SMR communities, this threshold will likely be much lower and should be carefully examined to set an appropriate level and stepped approach to cover additional buildings over time.
- What software will be used for reporting purposes?
 - EPA's Energy Star Portfolio Manager is a free and easy-to-use software that has been utilized by most of the municipalities who've previously adopted benchmarking policies. EPA provides resources, trainings, webinars, and more to ensure building owners can correctly input their data. A municipality will be able to create a custom reporting template in Portfolio Manager which will allow each individual building owner access and reporting.

- How will information be publicly disclosed?
 - Many cities publicly disclose the data beginning with their public buildings in year one. In year two (i.e. the first year commercial or residential buildings are required to benchmark), the municipality may only publish high-level compliance data. In subsequent years, a more detailed analysis including key metrics such as EUI and greenhouse gas emissions may be published on the municipality's website.
- How will non-compliance be handled?
 - Compliance and enforcement is unique and specialized to each individual municipality due to local laws and codes. Considerations should be given to written warnings and fines for building owners who fail to comply.

Benchmarking Ordinances – Finding the Right Fit for your Community

Building energy benchmarking ordinances have mostly been enacted in major cities such as New York City, Philadelphia, and Boston. These metropolises, along with others throughout the country, are categorized by having high populations and large building stocks that consume substantial amounts of energy and produce significant carbon emissions. South Portland, on the other hand, is a small community relative to the others. With a population of approximately 25,556 (U.S. Census Bureau), the city of South Portland is the smallest municipality in the country (at the time of adoption) to require benchmarking for public, commercial and residential properties.

Another unique aspect of South Portland's policy is how the policy was put into effect. Unlike other cities, South Portland requires benchmarking as a part of their zoning ordinance specific to the Mill Creek area, which is a central business district. One of the benefits to building owners in this area is the financial incentive associated with the benchmarking ordinance. Owners are eligible to receive a development fee reduction incentive up to \$5,000 for compliance with the benchmarking policy. The newly adopted policy is viewed as an opportunity to spur growth in the economic center of the city. Details of a benchmarking ordinance vary by location and should be based on the priorities of that particular community. Early stakeholder engagement is the key to enacting a policy that will achieve high rates of compliance and be viewed as beneficial to community members. The city of South Portland has enacted a policy that meets the needs of the community and will help building owners make informed decisions about their energy usage going forward.

Consideration #4: Training and Compliance Measures

Building energy benchmarking will likely be a new practice for building owners, especially in SMR communities where owners are less likely to manage a portfolio of buildings.

- What resources are needed?
 - How-To-Comply Guide provides step-by-step guidance from creating a portfolio manager account, gathering energy data, and reporting to the municipality.
 - Portfolio Manager Training in-person or virtual training session provides an interactive forum for users to familiarize themselves with the reporting tool. This training may be accomplished by contacting the local EPA regional office and requesting a training.

 Operations and Maintenance Best Practices – The ultimate goal of benchmarking is to reduce energy usage in buildings. By providing O&M best practices, owners and operators may be able to implement low-to-no cost measures that can reduce energy costs in their facilities.

Residential Labeling

In most cities with benchmarking policies, the commercial building stock represents a significant portion of the overall square footage of total building space across all sectors (commercial, residential, public, industrial, institutional, etc.). However, in SMR communities the residential sector is more of a priority for benchmarking efforts due to the potentially lower percentage of commercial buildings. For the purposes of this report, measuring and analyzing energy usage in the residential/multifamily sector is referred to as residential labeling rather than benchmarking.

Increasingly, more states and local governments are considering and implementing residential labeling policies as a means of increasing transparency of home energy costs. Owners, sellers, and potential buyers can use this information to make informed decisions about home ownership that includes the true costs of operating a residential property. Data uncovered from these labeling efforts can also be used to drive investments in energy efficiency upgrades. A necessary first step in understanding if a residential ordinance is the right action for a community is to complete an analysis of the town assessor data to determine how many homes/multifamily units are within a community and what percentage of the overall building square footage the residential sector accounts for.

What is Residential Labeling?

Residential labeling is the process of providing reliable home energy information, typically to the real estate industry, through programs and/or state and local policies. Similar to vehicle fuel-economy ratings and EnergyGuide labels for appliances, home energy labels allows for buyers to compare energy efficiency and performance of various homes, determined through benchmarking. Having the tools and resources necessary to understand building energy usage allows for a better valuation for both real estate professionals and home buyers/renters. Energy prices are one of the largest expenses for a household and supplying reliable estimates on energy usage will drive up energy efficiency improvements. Educated consumers make informed decisions when purchasing or renting a home and allowing for that home energy information to be accessible is the first step in creating an efficient building stock.

Benefits of Home Energy Labeling:

- Cost Savings: Transparency for homeowners on ways to reduce cost through energy efficient home improvements, as well as information for home buyers about the estimated cost of energy in a home leads to better informed decisions
- Market Transformation: Reliable and transparent energy information from energy labels may allow real estate markets to better account for the value of energy efficiency in a home. This is expected to encourage investments in efficiency improvements and drive long-term market transformation

- Reduced GHG Emissions: Increased demand for energy efficiency and renewable energy projects will result in reduced reliance on fossil fuels, therefore reducing GHG emissions, particulate matter emissions, and other air pollutants
- Workforce Development: Increased demand for local home energy assessments and local contractors for home energy retrofits

Labeling Program Structure

Residential labeling programs can be structured on a voluntary or mandatory basis. More information about these two options is provided below (information was adopted from NEEP's <u>Regional Residential Energy</u> <u>Labeling Action Plan</u>).

Voluntary: This structure is typically presented in conjunction with energy efficiency programs offered by utility program administrators to program participants. This method provides transparency to homeowners when completing a home energy audit of the estimated annual energy cost and consumption before and after recommended energy efficiency upgrades. Programs using this method are typically targeting homeowners who are not looking to sell their homes, but may be interested in making upgrades to improve comfort and reduce costs. In these systems, re-scoring after upgrades are completed is important not only to ensure homeowners have a score accounting for completed improvements, but to determine if there are energy savings associated with the addition of the label. Updating efficiency measures for the home some months to years after the initial labeling and updating of the score can be used to provide utility attribution and determine the value proposition for the utility. This last part, however, has not been done for most voluntary labeling programs so far.

Mandatory: This structure is implemented at the city or state level where the governing jurisdiction requires a home energy label to be completed, often at time of listing or time of sale. Time of listing is a preferred method for market transformation because the information gleaned from the label can be provided to potential home buyers before purchasing a home. This allows home buyers to include this information in their decision-making process. Mandatory programs often generate a higher market participation level compared to voluntary programs.



Berkeley, California

Ordinance Link: <u>https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_</u> <u>Energy_and_Sustainable_Development/BESOordinanceUpdated_20170329.pdf</u>

Summary: The ordinance was established to reduce energy and water consumption in existing buildings with energy efficient upgrades that will lower energy costs and emissions while increasing comfort and health of building occupants. The ordinance applies to all buildings that are located in whole or in part within the city. Owners of a single family building must have a registered service provider prepare and submit to the Administrator an energy report at 1) time of building sale; or 2) within 12 months of a lender having acquired title due to foreclosure or deed in lieu of foreclosure. Requirements include an energy efficiency assessment and public reporting of the assessment and disclosure of energy information prior to sale. To add on, BESO requires large commercial and multifamily building to submit an annual benchmarking and complete an energy assessment once every five years & buildings less than 600 sq. ft. and individually owner units within a large building are exempted at time of sale.

Compliance: The Director of Planning & Community Development will issue a written notice of violation to any building owner determined to be in violation of any provision of this chapter. In the event a building owner fails to file an EnergyStar performance report within 30 days after the scheduled deadline or an energy report within 90 days after the scheduled deadline, the director shall indicate the buildings compliance status via the publicly accessible electronic reporting interface. Violations will be charged as infractions. Violations of this chapter are

also punishable. Penalties for not meeting the compliance requirements are a \$100 fine for each violation of the ordinance, and an additional fine of up to \$25 a day (up to \$1,000) for the duration of the violation.

Disclosed Information: A summary version of the most recent energy report prepared and submitted by a registered service provider will be made publicly available by the administrator.

Rating System: Owners of a single family building shall have a registered service provider prepare and submit to the administration an energy report including a building energy score or green building rating

Main Metric: Energy report with the building energy score (can be in the form of a performance score, asset score, or other comparable metric)

Trigger Event: Disclosure of the most recent energy report shall be provided to existing lessees and to prospective lessees and buyers prior to execution of a lease or contract for sale.

Use Cases: The policy will be applied to single family homes (1-4 residential units), medium and small buildings, and large buildings (25,000sq ft. +).

Low Income Subsidies: A high performance exemption permanently relieves the building agent of the requirement to submit an energy report (low income assistance program like LIHEAP). Additionally, the Administrator may establish rules and regulations to encourage participate in local, regional and statewide incentive programs and to otherwise incent property owners to pursue early compliance and/or achieve a high performance exemption (exempted from buildings that demonstrate effective and reasonable achievable level of efficiency.

Montgomery County, MD

Ordinance Link: http://montgomeryco-md.elaws.us/code/montgom/40-13b/

Summary: Montgomery County requires home sellers to provide an energy cost and consumption history along with information on residential energy efficiency opportunities. The seller must provide: copies of applicable electricity, gas and home heating oil bills or a cost and usage history for the 12 months immediately prior to the sale, unless the home was previously occupied for the entire 12 month period; the required information for the part of the prior 12 months, if any, the single family home was occupied; and information approved by the Montgomery County Department of Environmental Protection, to assist the buyer in making energy conservation decisions.

Compliance: Any violation of this article is a Class A violation, the Office of Consumer Protection must enforce this.

Disclosed Information: Before signing contract for the sale of a single family home, the seller must provide the buyer with: material approved by the Department that gives information about home energy efficiency improvements, including the benefit of conducting a home energy audit; and copies of bills, and usage history for the home for the immediate prior 12 months unless the single- family home was unoccupied for the entire prior 12 months. If the seller did not occupy the single-family home for the entire prior 12 months, the seller must provide the buyer with the required information for that part of the prior 12 months, if any, that the seller occupied the single-family home.

Rating System: Utility bill disclosure, energy performance audits are not required

Main Metric: Energy bills and usage history

Trigger Event: Disclosure will be triggered prior to the sale.

Use Cases: The disclosure law applies to owner occupied single family homes and condominiums that are individually metered by electrical or natural gas utilities.

Low Income Subsidies

No subsidies from the ordinance but Maryland offers a number of energy and weatherization assistance programs for low-income residents such as the EmPOWER Low Income Energy Efficiency Program (LIEEP), WAP, Maryland Energy Assistance Program, etc.

Additional Resources for Policy Development:

Communicating the benefits of benchmarking:

- LBNL: Evaluation of U.S. Building Energy Benchmarking and Transparency Programs: Attributes, Impacts, and Best Practices
- IMT: The Benefits of Benchmarking Building Performance
- DOE: Benchmarking & Transparency Policy and Program Impact Evaluation Handbook

Stakeholder Engagement:

- IMT: Engaging the Community in Policy Development
- IMT: Stakeholder Engagement Guide

Policy Development and Model Language:

- SEE Action Network: <u>Benchmarking and Disclosure: State and Local Policy Design Guide and Sample</u> Policy Language
- IMT: Annotated Model Ordinance Language for Improving Performance of Existing Buildings
- NEEP: South Portland Benchmarking Ordinance Case Study
- DOE: Building Energy Use Benchmarking Resources
- ACEE: <u>Residential Energy Use Disclosure: A Guide for Policymakers</u>
- DOE: Designing a Benchmarking Plan

Compliance:

- South Portland: How To Comply Guide
- Chicago: <u>Step-by-Step Compliance Instructions</u>

Residential Labeling:

- NEEP: <u>Residential Labeling Action Plan</u>
- NEEP:<u>HELIX</u>
- NASEO: <u>EMPRESS</u>
- DOE: <u>Home Energy Information Accelerator</u>

Benchmarking and Labeling as a Part of Comprehensive Energy Reduction Plan

So now that you have all of this information, what are the next steps to start working towards creating a benchmarking policy in your community? One of the most important aspects of a benchmarking policy is that it is not a stand-alone initiative, but rather part of a bigger green movement. Benchmarking is a great way to collect data and track progress towards large goals, such as reducing greenhouse gas emissions by a given year. To date, benchmarking data within the United States has been extremely underutilized, and "only 18 U.S. cities have benchmarking and energy use disclosure programs in effect. In locations where benchmarking and disclosure has already been established, that data is one of the most readily available sources that can be used by cities, utilities, service providers, and technology developers to drive energy use and greenhouse gas emissions reductions".² In SMR communities specifically, the driving force behind a benchmarking initiative may be the city council, but it could just as likely be an active citizen helping fill the gaps in a busy local government. By raising awareness and utilizing the right resources, anyone can be an energy champion, leading their community to greater energy efficiency.

Resources

There are a number of valuable resources readily available for individuals building owners, residents, local governments, and anyone looking to benchmark within their area.

EPA Portfolio Manager

EPA Portfolio Manager is a free software program created by the Environmental Protection Agency that allows building owners to put their data into an online database for energy analysis. This software is useful in that it allows building owners track and manage the energy and water use of their buildings, which leads to understanding of what upgrades and modifications need to be made to increase the buildings energy efficiency. All that's needed to get started is basic building information and the building's energy bills!

Open Access Benchmarking

Open Access Benchmarking is a program created by ICMA (International City/County Management Association) that aids in the benchmarking process for local governments. ICMA is the leading organization of local government professionals dedicated to creating and sustaining thriving communities throughout the world. Its benchmarking program allows any city or county to report benchmarking data (collected using any software) to its online system, and then compare their metrics to neighboring communities. It is very flexible because it allows communities to obtain benchmarking comparisons no matter their software choice or reporting cycle. Small jurisdictions, in particular, can benefit from the program because it also allows for communities to see performance data, without putting in any themselves. This means that it can be a very useful tool for communities that have not yet developed and defined benchmarking measures or policies yet, but are looking to do so. More information on this program can be found on the ICMA website.

Although these two programs are highlighted within this report, there are a great number of other programs, whether they be public, private, paid, etc. that SMR communities can take advantage. The US DOE's Building Technologies Office also provides many helpful resources for building retrofits and more.

² <u>https://rmi.org/benchmarking-data-can-help-cities-meet-climate-goals/</u>

Conclusion

Building energy benchmarking and labeling is a key first step when it comes to improving energy efficiency and reducing carbon emissions in communities. To be successful in small, medium, and rural (SMR) communities, these efforts need to be carefully crafted to overcome the unique challenges that these communities face. These barriers include resource and bandwidth constraints, geographical proximity challenges, and more. These SMR communities, however, present a great opportunity for energy efficiency because, to date, many efforts in the region have been focused in and around major metropolitan areas. To the benefit of SMR communities, there are many lessons learned, best practices, and resources from previous efforts in larger cities that can be utilized to overcome some of the barriers highlighted above. However, it is critical that those working to implement these types of policies work in a collaborative manner to craft policies that are unique and fit the needs of the individual community. Lastly, if any community is seeking to advance benchmarking policies in their community, NEEP is available to provide direct technical assistance to guide and inform efforts.