

# Saving Energy at Home in Green Bay



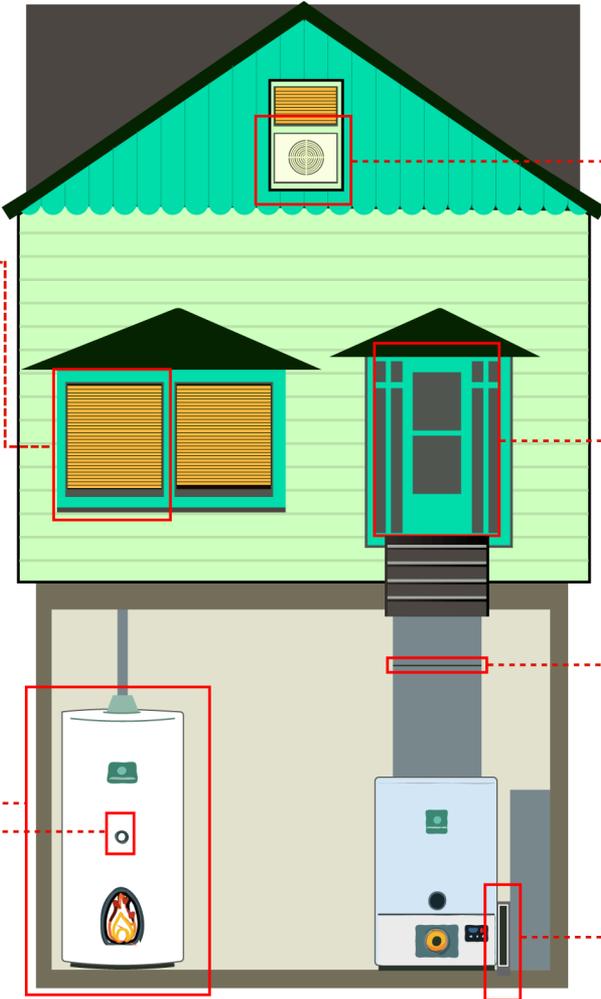
Close and lock storm windows in fall, seal with caulk, weather stripping, or window film.

Keep AC unit clean and clear of brush.



Insulate hot water heater with heater blanket.

Set hot water temp to 120°F.

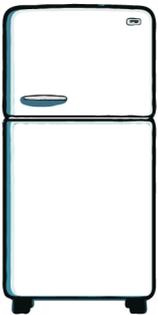


If you have a window AC unit, make sure edges are sealed in summer & take it out in winter.

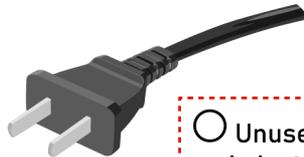
Check exterior doors for leaks. Seal with a door sweep and caulk.

Check ducts for air leaks, seal w/ foil tape (not duct tape).

Replace furnace filter every 3 months.



Keep your refrigerator and freezer dust and frost-free to help them run smoothly and last for a long time!



Unused power adapters and electronics can use electricity, even when they're not turned on! Keep things unplugged to save money!

Go to Focus on Energy's [focusonenergymarketplace.com](http://focusonenergymarketplace.com) and order a smart thermometer. Several times per year, they're on sale for \$5-10. A smart thermometer will help you to reduce your energy costs by learning your habits and being easier to program.



While you're at Focus on Energy's website, check out their Renter Resources page.

# Do these things ASAP to lower your utility bill next month!



LED lightbulbs use about a tenth as much electricity as incandescent bulbs. If there are still incandescent bulbs lurking in the corners of your home, replace them and start saving.

Chimneys are designed to draw heat out of your home. So, if you have a fireplace you're not using, make sure that the damper is shut and it's well insulated.

# **Energize Green Bay is the clean energy campaign of the City of Green Bay.**

## **Need more copies? Email Energy.Connector@greenbaywi.gov**

This booklet was developed as part of the Energize Green Bay campaign with funding from the US Department of Energy's Energy Efficiency and Conservation Block Grant (Project ID: SE0001056) and the Urban Sustainability Directors Network Emergent Learning Fund. Questions can be directed to [Energy.Connector@greenbaywi.gov](mailto:Energy.Connector@greenbaywi.gov).

**Illustrations:** Carolyn Paplham, Alex Galt, and Adobe Stock.

**Special thanks to:** the City of Green Bay, the Department of Public Works and all of our campaign partners for contributing their insights and understanding.

## **Please Note:**

The specifics of tax credits, rebates, loan programs, and other incentives are subject to change. Every effort has been taken to ensure that the information within is accurate at the time of writing.

**Disclaimer:** The information presented here is intended as an overview. The best source of information about any program referenced in these pages is the organization that manages it. Always consult a tax advisor about tax credits.

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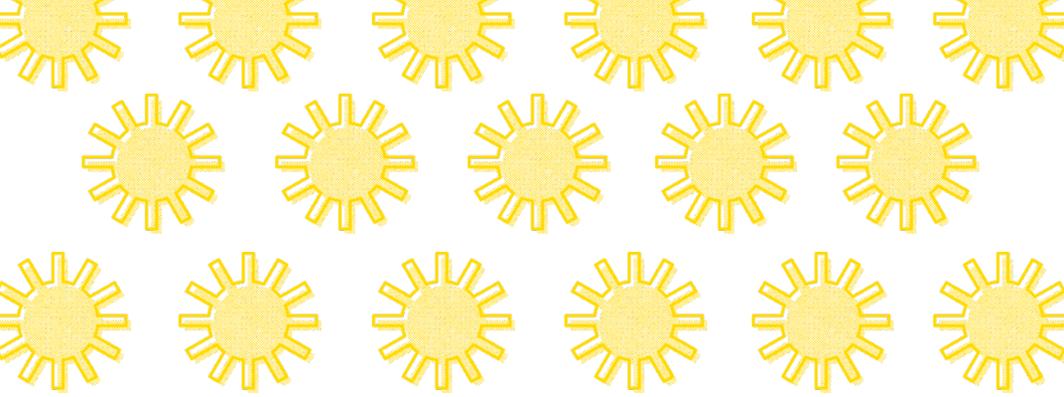
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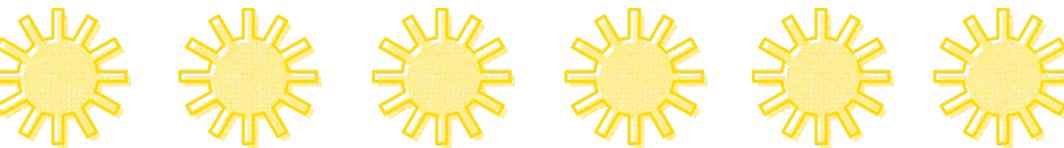
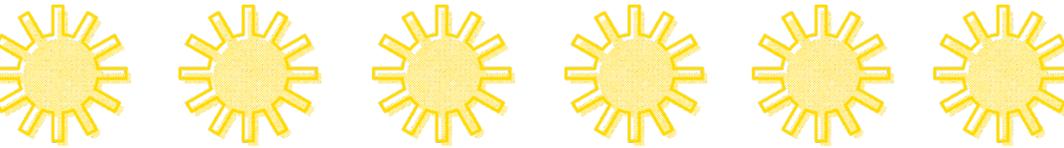
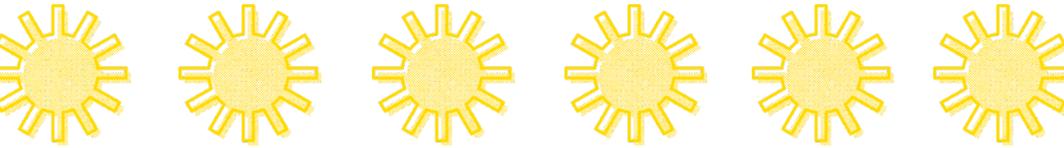
For more information, go to:

<http://greenbaywi.gov/energize>

<http://greenbaywi.gov/sustainability>



*If you see a word in **bold**, you'll find a definition in the glossary on page 40.*



# Part 1: The Benefits of Clean Energy

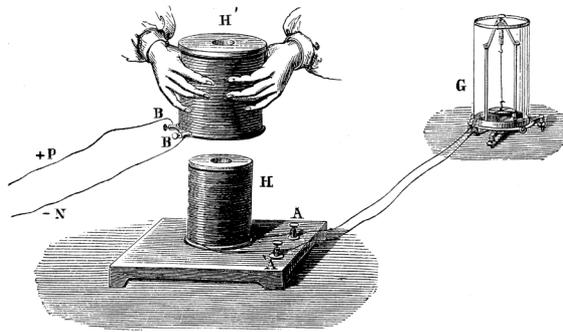
## A Brief History of Energy

We're talking about the **energy** that you use in your home. The stuff that cooks your food, heats your home, runs the fan, and charges your phone. In Green Bay, our electricity is generated by natural gas and coal-burning power plants and, to a lesser degree, renewable sources (mostly hydroelectric, wind, and solar). But we haven't always depended on these sources of energy. Green Bay residents 150 years ago cooked their food with fire, just like human beings had been doing since before we were completely human. The mix of energy we've used changes all the time, and we're beginning to see it change again.

If it's hard to imagine living without using energy, it's because we *never* have. Credit for the first use of fire belongs to our distant ancestor, **Homo Erectus**, sometime between 800,000 and 1,700,000 years ago. The ability to cook our food vastly improved their access to good nutrition, which helped put them on the evolutionary path to becoming **Homo Sapiens**.

Fire was only the beginning of our intentional energy use. Evidence of the use of animal power goes back 10,000 years. Over the past 2,500 years, we harnessed wind and water to run mills that we used to grind flour, press olive oil, forge metals, and to do many other types of mechanical work. The Romans built the first waterwheels around 300 BC. **Windmills** were first built in the Near East around 600 AD. Coal was first burned around 300 BC in China. Oils, waxes, and other fats became important sources of illumination and warmth.

Steam power, using wood and coal for fuel, began to be used for work and transportation in the 1700s, leading to the **Industrial Revolution**. This would continue to be the most important industrial power source into the 1900s, only to be replaced by internal combustion engines running on **fossil fuels**, like diesel, propane, and gasoline.



*From Michael Faraday's experiments with induced current. This was the moment we learned how to **generate** electricity.*

The phenomenon of electricity had been something that interested curious people for thousands of years. But, it only came to be understood in the 1700s, thanks to scientists like Benjamin Franklin. It went from being an experimental curiosity to a practical thing when Michael Faraday, an English scientist, invented the first electric generator in 1832. From that point, it was only 50 years till someone flicked on the lights at home. (The second house with electric lights in the world was just down the road from us, in Appleton. You can tour it. The Fox River was the first river to have a hydroelectric generator in the world, the Vulcan Plant in 1882.)

This technological revolution was followed by many more: **natural gas** power generation, wind-powered turbines, nuclear power, geothermal power, solar photovoltaic cells that generate electricity, and more to come..

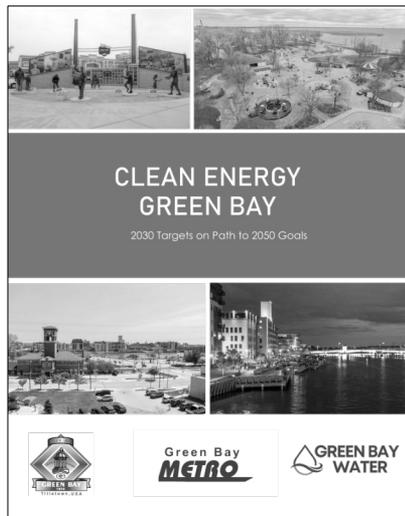
There are two dimensions to how we can look at energy:

- **non-electric vs. electric** Is the energy being used to do work directly (windmills, bbq grills), or is it generating electricity that powers something that does the work (wind turbines, solar PV)?
- **combustion vs. non-combustion** Some forms of energy involve burning things. Some don't. Burning things, or combustion, not only releases heat energy to do work or generate electricity, it also emits gases, ash, and other compounds, many of them toxic, that impact the environment and our health.

By the 1960s, scientists began to understand that the gases released by fossil fuel combustion create a greenhouse-like effect that warms the climate. According to the US National Oceanic and Atmospheric Administration's Applied Climate Information System (NOAA ACIS) we are already seeing some big changes since 1970: the average annual temperature of Green Bay has risen by 4.1°F and we're seeing heavier downpours with 6.1 inches of increased rain and snow every year. Climate impacts like these will continue to worsen until the world reaches net zero greenhouse gas emissions.

## Green Bay's Clean Energy Plan

The Green Bay City Council passed a resolution in 2021 that set the goals of achieving 100% clean energy and net zero carbon emissions for Green Bay by 2050. In 2023, the Green Bay City Council passed a clean energy plan. That plan, *Clean Energy Green Bay, 2030 Targets on Path to 2050 Goals*, (available at [greenbaywi.gov/sustainability](http://greenbaywi.gov/sustainability), under the Energy & Emissions tab), was produced by Green Bay city staff, the Green Bay Sustainability Commission, concerned citizens, and Slipstream, an energy-related nonprofit. It contains recommendations intended to ensure that Green Bay makes progress toward its stated clean energy goals.



## What Is Clean Energy?

**Clean energy** is defined as energy that does not release greenhouse gases. Sources of clean energy include solar, wind, hydroelectric, nuclear, geothermal, and several others. But, the cleanest and cheapest energy of all is saved energy, meaning the energy you don't use, or conserved energy.

Right now, **only 17%** of the energy in the Green Bay area is clean! While that isn't good, it does mean that saving energy here in Green Bay has more impact than in

other places. Looking for ways to conserve more energy or become more energy efficient in your home or business will not only save you money every month, it will also help to preserve our environment for future generations.

## Top 5 Benefits of Clean Energy

There are many benefits, here are the top 5 that impact you:

**1.) Public health.** Using natural gas in the home, primarily for cooking and heating, has been shown to cause 13% of childhood asthma cases. Fossil fuels, as a whole, lead to 1 out of 5 respiratory illnesses. For this reason, the American Lung Association has prioritized clean energy as an area of concern.

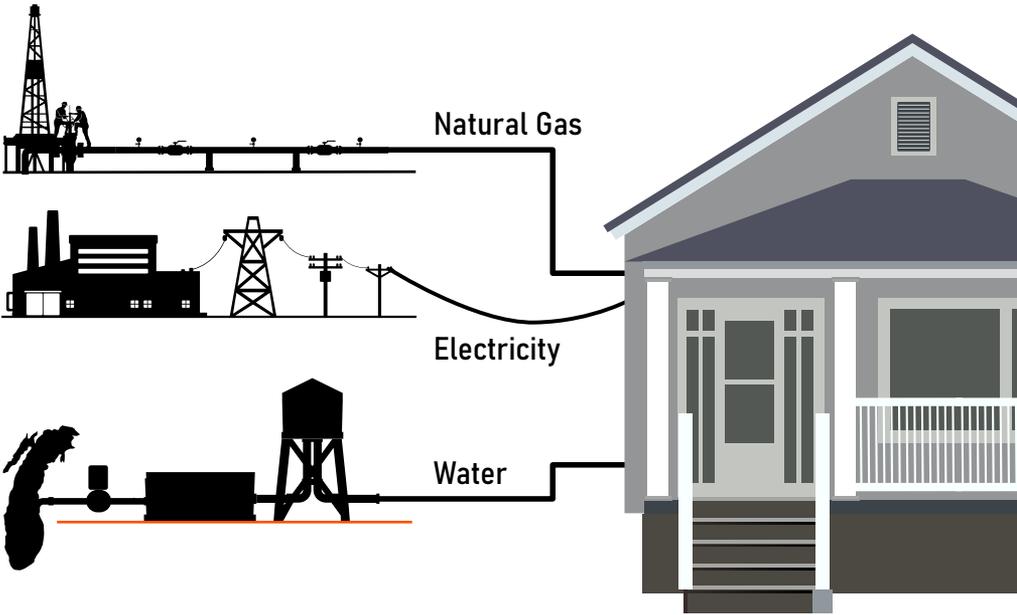
**2.) Local economy.** Wisconsin doesn't have large coal, oil, or natural gas deposits. We bring in six times as much energy from other places as we produce. This is expensive and it means that things that happen worldwide, like the war in the Ukraine or hurricanes in the Gulf, impact our prices. Making more of our power here will protect us from price instability.

**3.) The environment.** The burning of fossil fuels is the main reason for climate change and many other environmental crises.

**4.) Efficiency.** When you burn fuel to create electricity or heat, there is a lot of waste. Roughly 66% of the fuel used to generate electricity is wasted before it even reaches your toaster. Clean energy sources don't require combustion and don't waste as much energy.

**5.) Environmental Justice.** More affordable and older housing stock is both more impacted by pollution from power plants and more vulnerable to climate change-related events like floods.

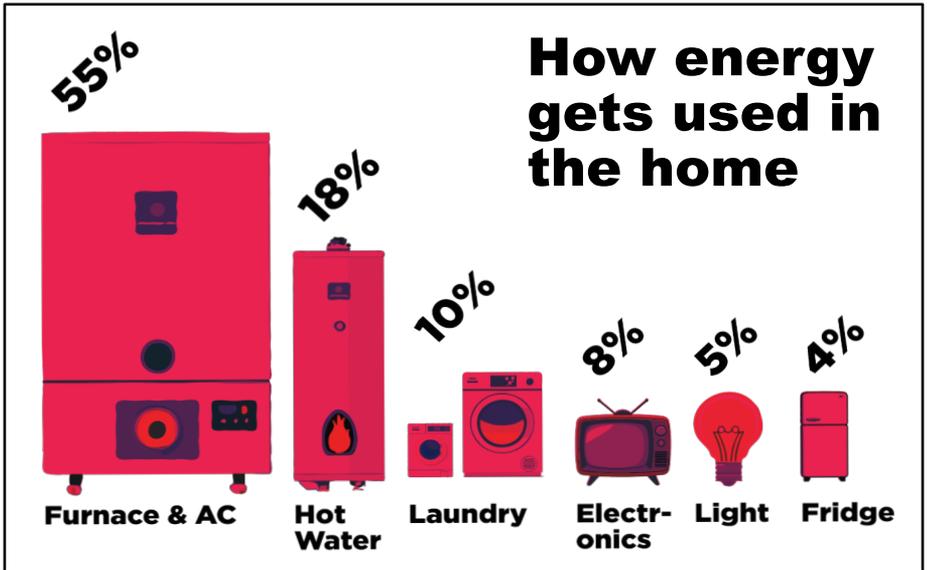
# Part 2: Flow



## Grids

Homes in Green Bay are connected to grids: the electric grid, the natural gas grid, municipal water and wastewater, and communications networks like cable, fiber optic, and copper telephone wires. We take the availability of these grids for granted, but each of these were a huge investment that we, our parents, grandparents, great-grandparents, etc. paid for. And some of these grids are enormous. The national natural gas grid, for example, has 3,000,000 miles of gas pipes!

The electrical grid is a very complex system made up of many players, including utilities, transmission companies, and others. It's also inefficient, before power reaches your electrical panel, roughly 2/3rds of it is lost!



*This graphic shows which systems in your home use the most energy (gas and electric).*

## In the Home

**Once the electricity reaches your home, anywhere from 10% to 50% of it is wasted. If you're on the high end of that, you could be saving a lot of money!**

According to the US Department of Energy, the average “energy burden” in the State of Wisconsin is 3%. In other words, the average household spends 3% of its annual income on energy costs. This means that a household that earns \$100,000 per year in Wisconsin, will spend roughly \$3,000 per year on its gas and electricity costs. Meanwhile, a household of 2 that earns \$50,000 and lives in a home that is older than 1940, will spend about 19% of its income on gas and electric power! That is more money in both very real and very relative terms. We call this the energy burden.

The biggest sources of energy waste in the home are:

- 1.) Loss of heated and/or cooled air through gaps and poor insulation.
- 2.) Poor thermostat management
- 3.) The hot water heater

4.) Older or poorly maintained appliances

5.) “Phantom” power loads,

6.) Inefficient lighting.

Another way of understanding this is that there are a number of household systems and the way *they use* energy is only part of the story. How these systems are maintained, constructed, and insulated is also incredibly important.

## System 1: Heating and Cooling

In Wisconsin, heating (and sometimes cooling) is a matter of life or death. That’s why there are rules on how and when an energy utility can cut residential customers off from service.

Heating is the most important system in the home, as well as the most expensive, by a large margin.

### Airflow and Comfort

But, before we begin to think about furnaces, heat pumps, and air conditioning units, let’s talk about how air moves through your home.



A house is like a chimney. Cooler air enters mostly at the base of the house, rises, and then leaves through the top. Fireplaces use the same principle to create a natural draught that pulls smoke from the inside, up the chimney, and outside. This is called **convection**, or the “**stack effect**.” What’s good for chimneys can be a disaster for poorly insulated houses: in the summer, upper stories of a multi-floor house can become hot and stuffy; and in the winter, cold air is pulled in from

outside and heated air escapes out the top. Here are some signs that your home may have issues:

- Snow melts off your roof more quickly than your neighbor's.
- "Ice dams" form along the edge of your roof.
- Your furnace and/or AC runs almost all of the time.
- Your rooms are unevenly heated. You can feel air coming in through gaps.

## Weatherization and Home Energy Assessments

The easiest and best way to identify your home's weak spots is to have a home energy assessor conduct an assessment. When they're finished with their tests and explorations, you will know where the air leaks are, which parts of the house require better insulation, and much more. The assessor is often a contractor who can insulate and seal your home. (If you are interested in having an assessment, you can find **Focus on Energy's** list of vetted contractors here: [focusonenergy.com/trade-allies](http://focusonenergy.com/trade-allies). Focus on Energy is an energy efficiency program run by the State of Wisconsin.)

Hiring an assessor will cost between \$300-500, and working with an insulation and air sealing contractor can be expensive. If you're renting your home, this may not be a worthwhile expense. However, with the cooperation of your landlord, you may be able to make use of NEWCAP's Weatherization Assistance Program or the IRA HOMES rebate, these options will be discussed more further along.. If an assessment, doesn't make sense, you can still use your best judgment about what needs to be addressed in your home to make it more energy efficient.

## The Basics of Weatherization

There are many no or low-cost things that renters and homeowners can do using straightforward tools and supplies like weatherstripping, fiberglass insulation, window insulation, caulk, foam sealant, and foam insulation. Some of these supplies are available from Focus on Energy for free (including shipping) at [focusonenergymarketplace.com](http://focusonenergymarketplace.com). Search for their "free energy kits," and select one

that has what you need. The **Habitat for Humanity Restore** on Allouez Avenue also often has inexpensive weatherization tools and supplies.

**Please Note:** If you're renting your home, make sure that you have your landlord's permission before doing anything that could impact your apartment after your tenancy! Your landlord may even be a helpful resource (especially if they pay for heat).

## Energy Efficiency Checklist

### Here's a basic checklist of things to check in Fall:

- Make sure window unit AC units are removed from windows.
- Put storm windows in place. In Wisconsin, windows should have two glass panes. If a window only has one and a screen window, and you can't locate the storm window, contact your landlord. Many windows won't seal completely until they are locked.
- Check your windows and doors. Are there gaps where air is leaking through? Use caulk, window film, and/or weatherstripping as needed.
- Check existing window and door seals. Is the rubber dried out? If so, the seal may need to be replaced. IF you can, check with the manufacturer. Does air leak underneath the door? You may need a new door sweep.
- If you have access, check the furnace ducting for air leaks and seal them with foil tape (not 'duct' tape).
- Replace your furnace filter regularly.

### In Spring/early Summer:

- Put screen windows in place. Check the screens for holes that insects can get through. Locally owned hardware stores can help you fix screens at relatively low cost.
- If you have a window AC unit, make sure it's sealed around the edges.

# Weatherization Assistance Program (NEWCAP)

One program that both homeowners and renters (with support from their landlords) may be eligible for is the **Weatherization Assistance Program**. In Green Bay, it's run by NEWCAP, which is a nonprofit community action program. To be eligible, you must have 1.) previously been part of the energy assistance program AND 2.) your household income must be at or below 60% of the state **median income**. If you become part of the program, an energy assessor will come to your home and do an assessment. A weatherization crew will then come and do all of the work for free, including insulation, air sealing, and upgrading furnaces and other equipment. You can go online to find out more and see if you're eligible at <https://www.newcap.org>

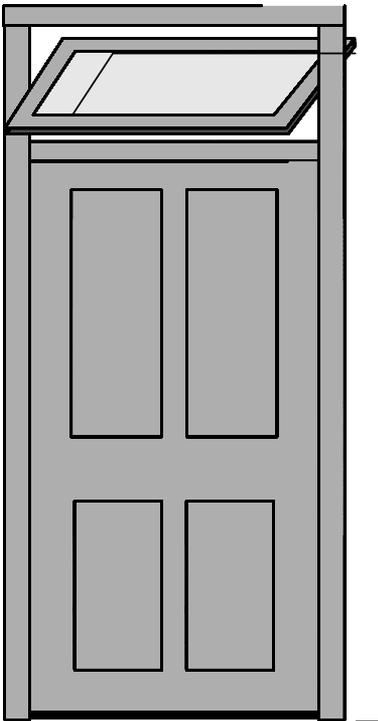
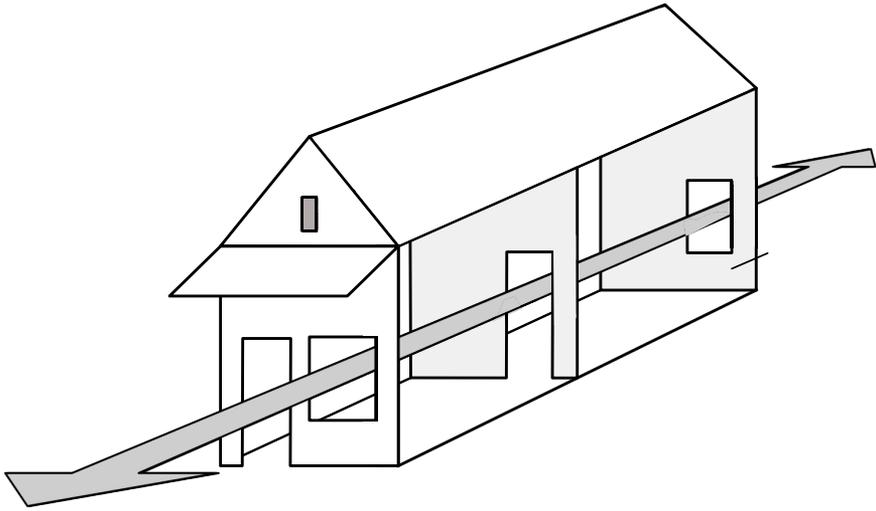
## Using the Stack Effect Strategically

The stack effect can also be your friend. The same natural convection effect that creates problems in winter can be used to cool your home in the summer, especially when combined with cross breezes and window coverings. If you have AC, try to see how long you can go before turning it on!

Long before air conditioning was invented, people discovered ways of using these passive cooling methods to make living in hot climates possible. The old homes of New Orleans are a great example. Consider these features:

- Tall ceilings so that hot air collects above your head.
- Transom windows above doors so that breezes can move warm air out of rooms.
- “Shotgun” layout to promote cross breezes.
- Vented shutters to let air in and keep the sun out.
- Deep, shady porches
- Vented rooftop cupolas that draw air up and out.

In cold climates, the same ideas have been used to keep buildings cozy. When the Fox River was lined with Menominee and Ho Chunk villages, Native Americans had to deal with the same harsh winters we do. Their wigwams (and *ciiporokes*) were



## **Transom Window**

The transom window helps exhaust hot air out of rooms while maintaining some privacy. You'll find these in older homes.

## **Electric Fans**

Be a fan of electric fans! Put one in a high window to draw warm air out, or use them to generate cross breezes. Ceiling fans can cool a room or keep warm air at ground level in winter (just remember to reverse their direction).

dome-shaped buildings that made use of radiant floor heating, a central fire pit, and a hole in the roof that used convection to draw out smoke. These same general ideas can still be used to make your home more comfortable cheaply (just don't build a central fire pit!)

**1.) Consider airflow pathways.** Consider the way that air flows through your home. If you live in a single-story house or apartment, you will be limited to cross breezes. However, if you have a multi-story home, you can also make use of the way that heat rises. Establish a cross-breeze on the first floor with an air flow pathway to the second floor. Window fans can be used to amplify the effect. Experiment!

**2.) Night flushing.** Night flushing is the simple strategy of closing your windows and window coverings during the hot day, then opening them at night after the temperature drops. Placing a fan in an upstairs window and keeping interior doors open will help draw out warm air and “flush” it out with cool night breezes. You'll start the next day nice and cool! When you can feel the heat begin to come in, close your windows and shades.

**3.) Make your home cozy.** In winter, seal your home up tight. Let the sun stream through the windows to provide warmth. If your windows are poorly insulated, you can seal them with window insulation film, weatherstripping, and/or caulk. Since heat rises, ceiling fans can be especially effective. Make sure they rotate clockwise. This will create an updraft that pulls cool air up and pushes warm air down.

**4.) Plant a tree.** This is not a short-term strategy, but planting shade trees around your home can significantly reduce your cooling costs. If you're lucky, someone thought to do this 50 years ago. That would have been the best thing, the next best thing would be to plant a tree today!

**5.) Make a covered porch.** If your home doesn't have a covered porch, you may be able to make one with shade cloth or a tarp. Invite your neighbors and friends over to enjoy it!

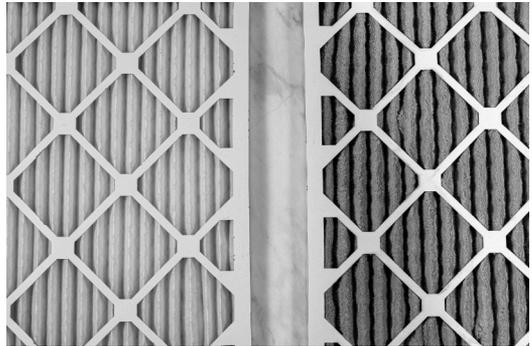
# Furnaces and Air Conditioners

We've now discussed how air flows through your home and how the stack effect can be used to help cool your home. While using these strategies makes it easier to live without central air conditioning, *heating* your home is a different story! Here are some key points to using ducted, natural gas furnaces—the most common type in Green Bay:

**1.) Fix leaky air ducts.** If you have access to your furnace, typically in the basement, check to make sure that there aren't any air leaks in the ducts. When the heat is on and blowing, this is easy to do. Leaks are common in older homes and can significantly reduce the efficiency of furnaces. Hardware stores sell foil tape to seal leaks. **Note:** despite the name, duct tape isn't meant for this purpose.

**2.) Insulate air ducts.** If the ducts themselves are warm to the touch, that means that some of the heat energy from the heated air is being captured by the metal ducts. Ducts can be insulated to minimize heat loss.

**3.) Replace your furnace filters every 3 months.** When filters are clogged with dust and dirt, air doesn't pass through them well. This forces the furnace to work harder, which makes it less efficient and shortens its lifespan.



**4.) Get a smart thermostat.** Smart thermostats make it easier for people to program temperatures for different times of day. You don't need to heat your home as much when no one's in it, or when you're asleep. You may also be able to control the temperature from your phone, which is handy when you get to work and realize you forgot to turn the heat down. Some smart thermostats will even learn the patterns of your day and decrease the temperature automatically when no one's home.

## Heat and cool your home less

It goes without saying that you can save money and energy by heating or cooling your home less. Experiment with your thermostat settings to see where the limits of your comfort are exactly. Maybe you can decrease the temperature by 2°F and feel just as comfortable by wearing a sweater. You may be surprised!

## System 2: Hot Water

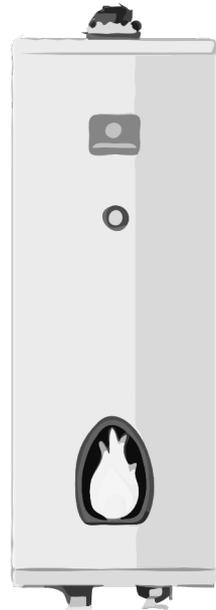
*Heating water is the second largest use of energy in the home.*

### The Hot Water Heater

Most people will have an electric or natural gas-fired hot water tank in their home. In single family homes or duplexes, these are typically located in the basement. In multi-family apartments, they can also sometimes be found in closets.

### Hot Water Temperature

The United States Department of Energy has done the research and determined that 120°F is a safe hot water temperature for most people. The exception is for people with compromised immune systems, who should keep their hot water heaters at 140°F. However, most hot water heaters come set at 140°F as a default. So, turn it down and save some money! If your hot water heater doesn't have the exact temperatures shown on its dial, you can check water from your hot water tap using a thermometer. Take the measurement from the tap with the closest and most direct path to the hot water tank. If you don't have a thermometer, you can go to [focusonenergymarketplace.com](http://focusonenergymarketplace.com) and order one of their "Free Energy Saver Packs." These packs, which have free shipping, will have a card that can measure the temperature of your hot water. Turning your hot water temperature down 20°F will save a ton of energy and money!



## Insulate your hot water tank

The newer your hot water heater is, the better insulated it will be. If you touch the outside of your hot water tank and it feels warm, that's heat energy that you're wasting! While a certain amount of heat loss is going to happen, you can reduce it by insulating your hot water tank. Hardware stores sell "hot water insulation blankets" for this purpose. They cost \$30-40 but will pay for themselves in a matter of months.

## System 3: Electricity and Appliances

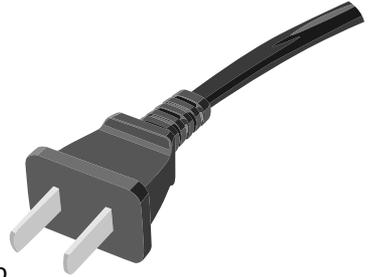
One way or another, when you plug a tv in, you're connecting it to the sun. Maybe you're among the handful who have solar panels on their roof. If so, then your tv is powered by a fusion reaction that took place just over 8 minutes ago, 93 million miles away. Amazing! Or maybe you're getting your energy from the grid like most of us. In that case, your tv may be running on sunlight that gave energy to ancient water plants and micro-organisms in an ocean 500 million years ago that eventually decomposed under intense heat and pressure and formed natural gases that were only recently freed from a geological formation several states away using a process called "**fracking**," then transported to a power plant near you and burned, releasing climate-warming carbon dioxide gas while spinning a turbine to generate electricity. If that's the case, then we should certainly be mindful of how much electricity we use!

We have more control over our electrical usage than anything else. And how much electricity we use reflects the size of our household, our habits, how careful we are, our hobbies, etc. While we may not have chosen the the appliances we live with, we can definitely be better at turning the lights off when we leave the room.

# Phantom Load

**Unplugging many appliances when they're not in use will save you electricity!**

In most American households, 10% of the electricity is being wasted by appliances, power strips, AC adapters, and other things plugged into your sockets that *are not being used*. Check your bill to see how much you spent on electricity last month. 10% of that amount may have been a self-imposed convenience fee that you paid to keep appliances plugged in. Was it \$4? \$8? \$12? Was it worth it? The easiest way to save a few dollars next month is to keep your things unplugged when you're not using them.



That being said, not all appliances are equal. Some are more vampiric than others. Some aren't at all! DVRs, for example, are particularly prone to being leeches. How can you tell which ones to be concerned about? The simplest, but least precise way is to use your sense of touch. Touch your appliances, power adapters, wall plugs, power strips, etc., If they're warm, you've been turning electricity into heat energy you don't need.



## Watt Meters

The most precise way to learn how much electricity your appliances are using when they're not turned on, is to use a **watt meter**. This is a device that can be placed in between the plug and socket to measure power drain. Some models even allow you to enter your utility rate so that it can figure out how much money you're spending. **The Brown County Library has several of these that people can check out, ask at the desk. You can also buy them at hardware stores and various places online.**

## **Here are some things you can do to reduce your phantom load:**

- 1.) Group appliances together (cooking appliances or home entertainment devices, for example) on power strips with on/off switches so that it's easier to disconnect them.
- 2.) Focus on Energy's marketplace sells smart or advanced power strips that automatically shut power off to appliances that aren't being used.
- 3.) When buying appliances and electronic devices, look for an Energy Star® rating. One of the things that Energy Star® checks is for power drain when not in use. You can look here: <https://energystar.gov>.
- 4.) Use device timers. For appliances that you only use at specific times of day, use a device timer that controls when energy flows into it.

## **Refrigerators and Freezers**

***Refrigerators works best when kept clean and free of frost-build up!***

We take refrigerators for granted, but we're very quick to replace them when they eventually break! These modern miracles will last longer and run more efficiently if you take good care of them. Anything that needs a compressor (refrigerators, freezers, dehumidifiers, AC units, etc.) will run better and more affordably if it's kept clean and free of dust, dirt, and other things that clog them. They will also work more efficiently if they allow for the free circulation of cold air. Freezers, in particular, should be kept as frost-free as possible. A chest freezer with its inside covered with a layer of thick ice and frost will need to work 10-25% harder.

Another part of refrigerators and freezers to check is the door. These typically are surrounded by rubber seals that help to keep the cold air inside. Over time, these can stop fitting neatly around the edge or become dry and cracked. A leaky fridge is a busy fridge. so take care to make sure that the seals are intact. If they're not, check with the manufacturer for a replacement or call your landlord.

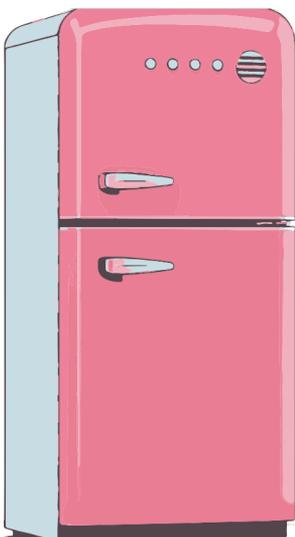
## Clothes Dryers

### Keep your lint trap clean.

If you own one and use it consistently, electric clothes dryers account for roughly 5 cents out of every dollar you spend on electricity. By comparison, the clothes washing machine next to it, accounts for about 2 cents. There is no question that it offers some convenience. But hanging clothes to dry, especially outdoors in the sun, isn't *that* much of a burden. The United States and Canada are the only two countries where a majority of households use clothes dryers. 87% of Americans use dryers most of the time (YouGov poll), while 30% of EU citizens (European Commission data, 2022), and 10% of Japanese do (Japan Soap and Detergent Association Survey). This may be something to consider if you're looking to shave some dollars off your next utility bill or reduce your carbon emissions. Clothes drying racks are widely available. Let evaporation do the work!

If you are using a dryer, make sure to clean out the lint trap and vent regularly.

Blocked vents not only lead to loads coming out damp, but they will also force the dryer to work harder. This makes them less efficient and shortens their lifespan.



## Old and Inefficient Appliances

Technologically, we have made giant strides over the past several decades. An old refrigerator may use twice as much energy as a new, Energy Star® rated fridge. Also, appliances tend to become less efficient over time. In other words, all of those old appliances (if that's what you're dealing with) may be costing you money you wouldn't otherwise be spending every month. We'll discuss rebates and other incentives that

exist for electrical appliances in the next section. Here, our goal is just to put these old machines on your radar. Keep them maintained, and if the opportunity comes up, replace them (or encourage your landlord to replace them) with Energy Star® certified ones.

## Resources for Renters

As we've seen, there are many things that renters can do to save on electric and gas bills—if they're not included in the rent. But even if all of your utilities are included, saving energy is important for protecting the environment.

Focus on Energy maintains a section of their website called “Renter Resources” that has useful information for tenants. It also has an anonymized form you can fill out if you think that improvements can be made to your multifamily building and, for whatever reason, you don't want to contact your landlord directly. Focus on Energy will follow up by contacting your landlord or property manager with information and incentives to help them improve their property. You can find this resource at:

<https://focusonenergy.com/business/renter-resources>

# Part 3: Control



*This section is intended for homeowners and renters who have a degree of control over the home they live in, perhaps in cooperation with their landlord or property manager.*

So far, this booklet has been concerned with energy and how it can flow better through your home. This section is about what you can do when you have more *control* over your

home and can make physical alterations, replace appliances, and do things that would fall outside of typical lease terms. Government clean energy and energy efficiency programs generally assume that you have this kind of control.

## Three Steps Toward Energy Efficiency and Electrification

Green Bay's clean energy goal will be achieved by both transitioning our community's sources of electricity to clean energy and by using *less* energy. Right now, the average American household uses about twice as much energy as the average German household. A lot of that difference is because our weather is more extreme, meaning we need to turn on our furnaces and air conditioners more often. But there are also differences in building standards, government policies, and how people live. Unlike the United States, which has abundant fossil fuel resources, countries like Germany and Italy have always had to import most of their fossil fuels, leading to higher energy costs. So, they have had financial incentives to consume less energy.

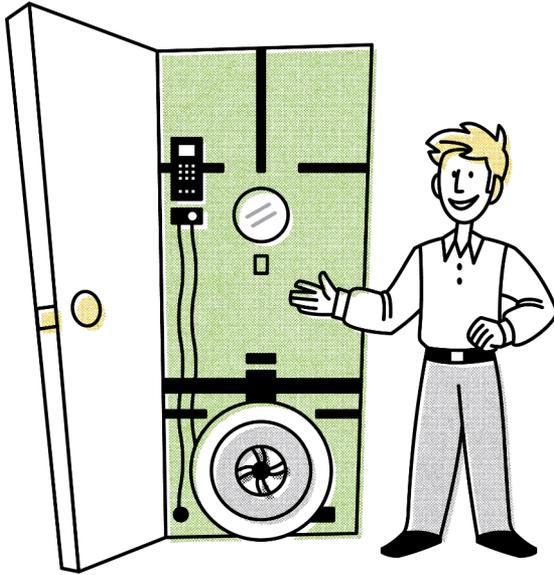
Most of us won't be able to jump from where we're at to an energy efficient home running on clean energy overnight. So, how do we get there? It's best to think of this path as having three steps:

<b>1</b>	<b>Home Energy Assessment.</b> People like to say, “You can’t manage what you can’t measure.” This is definitely the case for energy efficiency and homes. The best way to know where your home’s strengths and weaknesses is to get a home energy assessment.
<b>2</b>	<b>Weatherization.</b> Once you have a “map” to your home’s weak points, the next step is to insulate it and seal it up tightly so that as little energy is wasted as possible.
<b>3</b>	<b>Electrification.</b> Most homes in Green Bay use a mixture of electric and fossil fuel-burning appliances. As the electricity in the electric grid becomes cleaner, our goal should be to shift away from appliances that run on natural gas. This will mean changing from natural gas furnaces to air source heat pumps, for example, over the next 25 years.

This section will follow this three-part structure. We'll also look at state and federal rebates and financing options that are there to help you.

## Step 1: The Home Energy Assessment

Most older homes—those built prior to 1970—are *very* leaky, with up to 80% of the air being exchanged every hour. If you need to heat that much of the air in your home every hour... well, you can see how that can begin to get expensive. Homes built after 2005 tend to be about 30% tight, while some specially designed (and very pricey!) “passive” homes can be as much as 10% tight. The odds are that your home could be improved with upgraded air sealing and insulation. A home energy assessment is how you can find out what your home needs.



*The blower door test will measure the leakiness of your home.*

## The Assessment

So, what will the assessment look like? A qualified home energy assessor will come to your home. They will most likely begin by doing a “blower test.” This means that they will close all of your doors and windows and temporarily seal one of your doors with a device that uses a fan. By controlling the air flow, the test shows how much air leaks through all of the cracks and gaps in your house. Imagine all the air that flows through an open window. The test will reveal exactly how big that window would be. To find these openings, the assessor has two main tools. The first is an infrared camera that can show temperature differences. Not only will this reveal gaps, but it will also show where the insulation is weakest. They may use a small device that blows puffs of smoke into the air to reveal air leaks. Assessors will also test for air quality issues, like **radon** and other toxic gases. When they are finished, the assessor will explain the results and, very likely, hand you a list of projects you can undertake to make your home more energy efficient. Most home energy assessors are also insulation and weatherization contractors, so they will offer to do this work for you.

## FAQ

- **How much will it cost?** It varies, but generally between \$300 and \$500. While that's a big expense, it will eventually pay for itself in savings (assuming you follow through on weatherization).
- **Any other incentives?** Yes, if you participate in the HOMES Rebate program (see the next section) and are income qualified, Focus on Energy will pay for up to \$500 of the assessment costs. The home energy assessor must be on the list of HOMES-registered contractors. Check out our resource section under Focus on Energy to learn how to get started.
- **What if my household income is below 60% of the state median?** If that's the case AND you've previously used energy assistance, then you may qualify for the Weatherization Assistance Program run by NEWCAP. NEWCAP will send a team to your home to do the assessment and make any of the required upgrades for free.
- **Where can I find a list of home energy assessors?** Focus on Energy's list of trade allies is always a good start. It's at <https://focusonenergy.com/trade-allies>

## DIY Home Energy Assessments

While a professional home energy assessment is the gold standard, it may not be something you can currently afford. A careful "self-assessment" is worth doing. This is especially the case in older homes, but even newer ones may have some obvious issues. The U.S. Department of Energy maintains a useful resource at <https://energy.gov/energysaver/do-it-yourself-home-energy-assessments>.

## Step 2: Weatherization

There are, more or less, four ways of weatherizing your home. We've already described the Weatherization Assistance Program run by NEWCAP. If you qualify for it, you should contact them. It would be hard to beat a free weatherization service!

However, if you don't qualify, you're left with three choices:

- 1.) Work with a contractor using the HOMES rebate program.
- 2.) Work with a contractor without the HOMES rebate.
- 3.) Do the work yourself.

### 1. HOMES Rebate Program

*Please note: Each state that has launched the HOMES rebate program has done it their own way. If you look for information online about the program, make sure to use resources specifically meant for Wisconsin.*

The **HOMES rebate program** is part of the **Inflation Reduction Act** that was passed in 2022. It's specifically designed to make *existing* homes more energy efficient.

HOMES begins with a home energy assessment done by a HOMES-registered "primary contractor." They will use specially developed energy efficiency software to make a model of how your house is currently working in terms of energy efficiency, and how much improvement you can expect from any of a number of weatherization upgrades. These will be projects like air sealing, adding insulation, upgrading the furnace, etc. The software will show how much of an improvement each these projects will make. The amount of the rebate will depend on your household income and how much the projects will improve the overall energy efficiency of your home. So, for example, if the projects increase the efficiency of your home by 22% and you have a family of 4 with a household income of about \$85,000 or less, you can get 100% of the project costs covered up to \$5,000. If the projects will increase the efficiency of your home by more than 35%, you can receive up to \$10,000 in rebates.

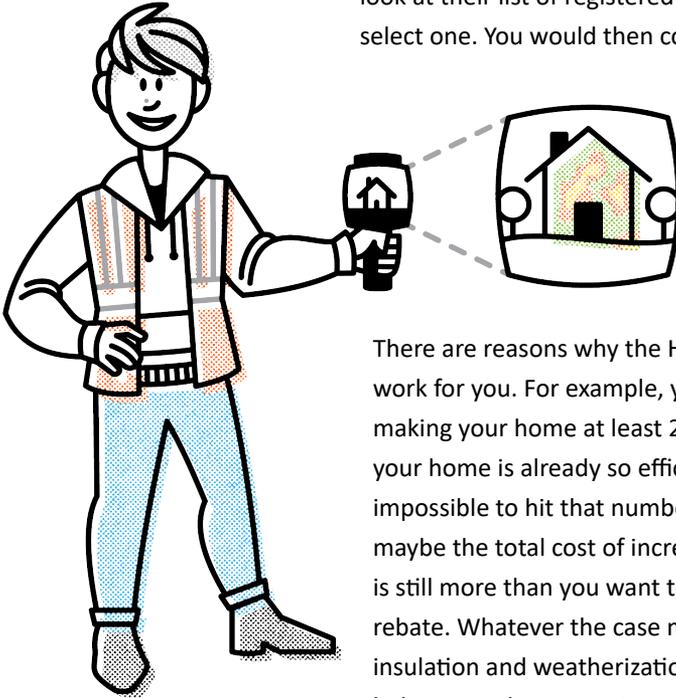
<b>Modeled Energy Savings</b>	<b>Household Income</b>	<b>Rebate</b>
20% - 34%	Less than 80% <b>Area Median Income (AMI)</b>	100% of project cost, up to \$5,000
	Between 80% AMI and 150% AMI	50% of project cost, up to \$2,000
	Greater than 150% AMI	50% of project cost, up to \$1,500
35% or greater	Less than 80% AMI	100% of project cost, up to \$10,000
	Between 80% AMI and 150% AMI	50% of project cost, up to \$4,000
	Greater than 150% AMI	50% of project cost, up to \$3,000

## Can you use HOMES alongside other programs?

- The HOMES rebate can be used alongside, or "stacked with," state-level Focus on Energy rebates.
- You can use both the HOMES and HEAR programs (another IRA rebate that we'll discuss in the next session), but not for the same project.
- If you happen to have multiple homes, you can use these programs on each property.

## How do I get started?

To use the HOMES rebate, you will need to go to Focus on Energy's website and click on "IRA Home Energy Rebates" under the "Rebates and Incentives" tab. The household income verification process is the first step. From there, you will need to look at their list of registered primary contractors and select one. You would then contact that contractor to get started.



## 2. Working with a Non-IRA Registered Contractor

There are reasons why the HOMES rebate may not work for you. For example, you only qualify if you're making your home at least 20% more efficient. Maybe your home is already so efficient that it would be impossible to hit that number! Good for you! Or maybe the total cost of increasing efficiency that much is still more than you want to spend, even with the rebate. Whatever the case may be, there are many insulation and weatherization contractors available to help you with your project. Focus on Energy has a network of "trade allies." These are trusted

professionals who will be able to help you access state-level Focus on Energy rebates. While these are less generous than HOMES, they can save you substantial money if you qualify.

## Using the HEAR program for weatherization

The Home Electrification and Appliance Rebate (HEAR) is another federal program run by Focus on Energy. If you're eligible, it can be used to cover up to \$1,600 in air sealing, insulation, or ventilation costs. To take advantage of this, work with a registered HEAR contractor, which you can find on Focus on Energy's website.

### 3. DIY Weatherization

Maybe you have the ability to do some of the work yourself, be aware that it's possible to make significant mistakes. Existing health hazards in the home, (things like **asbestos**, mold, or lead) may need to be dealt with by trained professionals before work can proceed. Careful attention also needs to be paid to potential problems with moisture and “**knob and tube**” electric wiring. For these reasons (and others) the specifics of DIY projects are outside the scope of this booklet. Proceed at your own risk!

That being said, there are many books on the subject available at the Brown County Library. There is also a \$200 rebate from Focus on Energy that you may qualify for. You can find out more at: <https://focusonenergy.com/residential/diy>

### Step 3: Electrification

Up to this point, we have done our best to optimize our home and how we live inside of it. We've discussed energy efficiency, how to use convection to move air through your home, and other topics. Step three is beneficial electrification, where we begin to work our way off the gas grid and make use of cleaner sources of energy. There is much more to say about each of the technologies listed below. You can find more information in our resources section.

### Heating and Cooling with Air Source Heat Pumps

The **air source heat pump (ASHP)** is the heating/cooling technology that's swiftly taking over from older **HVAC** technology. To date, these have been most popular on the Coasts, where replacing more expensive forms of heating like oil heat and electric baseboard heating saves people money. In fact, in recent years, they've even been outselling other types of furnaces. Unfortunately, here in the Upper



Weather Stripping



Window Insulation Film



Foam Sealant

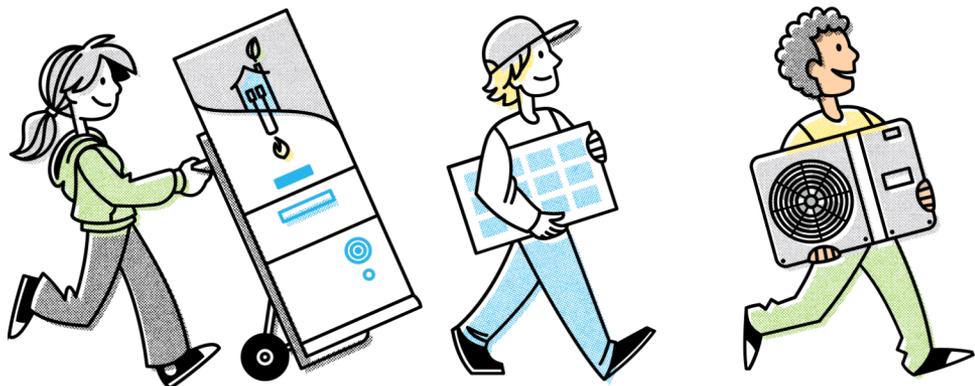


Fiberglass Insulation



Caulk

Caulk



Midwest, they have some big drawbacks. They may cost more to run than natural gas furnaces, up to \$1,000 per year more. And even “cold climate heat pumps” struggle at temperatures below 5°F, needing a boost.

## In that case, what's so great about heat pumps? What do I need to know?

- **Efficiency.**

Where the most efficient natural gas furnace in the world could never be more than 100% efficient, heat pumps routinely top 300% efficiency! That means that you get more energy in heating/cooling capacity out of it than you put into it. What feels like a magic trick is possible because instead of creating heat, the heat pump moves it from outside to inside and vice versa. That's right, heat pumps can both heat AND cool your home.

- **Air Source or Ground Source (aka geothermal)?**

Heat pumps need to be able to draw heat energy from somewhere. Current systems work with outside air, the ground (geothermal), or ponds and other bodies of water. Most systems draw from the air and are called Air Source Heat Pumps or ASHPs. Geothermal heat pumps are better, but they are also more expensive and difficult to install. They're very well suited to larger public buildings, so Green Bay Area Public Schools has begun incorporating them into new school buildings.

- **Ducted or Duct-less?**

ASHPs can either be fitted into your existing duct work, or they can be installed

and run independently in separate rooms. These duct-less systems, often called ‘mini-splits,’ are extremely versatile and are perfect for heating and cooling spaces that aren’t connected to an existing system. Work with a qualified HVAC contractor to find the best solution for your home.

- **Carbon Emissions.**

Only heat pumps and other HVAC systems that run on electricity can be powered with clean energy. So long as we depend on natural gas furnaces, we will be dependent on older fuel sources that damage the environment and threaten public health.

## **Dual Fuel systems are the answer (for now)**

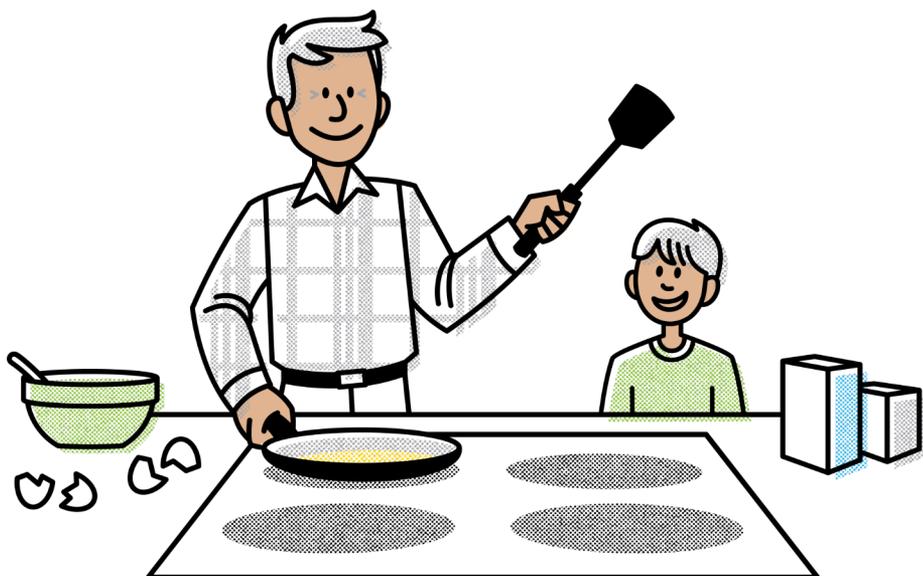
### **Replace your AC unit with an air source heat pump as a first step**

A dual fuel system (or “Hybrid”) is one in which you have both a natural gas furnace AND an air source heat pump tied together so that you use the heat pump most of the year. The gas is switched on when the temperature drops below about 20 or 30°F. You may only need to replace your air conditioner with a heat pump system to get started. (If you qualify, the HEAR program makes this more affordable.) Dual fuel systems won’t allow you to cut off your gas service, but they will drastically decrease your natural gas usage. And most dual fuel systems do not cost any more to operate than traditional systems. By the time you need to replace these units in, say, 15-20 years, there will likely be newer technologies available.

## **Cooking**

### **Gas stoves work well, but so do induction stoves and they're better for your health and the environment!**

Combustion creates chemical compounds like nitrogen dioxide, carbon monoxide, benzene, and other airborne toxins that are linked to birth defects, cancer, and respiratory diseases. These pollutants linger in the air above your gas stove while you’re cooking and long afterward. Toxins that are strictly regulated outdoors get a free pass in your kitchen. Why? While the Clean Air Act and EPA monitor outdoor air quality, no one’s watching the air inside your home, it’s up to you! Even when your stove is off, methane (natural gas) can leak from pipe fittings and valves into your



house.

Research shows that **13% of childhood asthma** cases are attributable to gas stove use. That's a significant health risk, especially for households with kids. And adults aren't immune. The **American Lung Association** strongly recommends switching to electric.

Fortunately, **induction cooktops** offer a cooking experience similar to cooking with gas, they're responsive like gas. And they are much safer than either gas or electric coil stoves. And with the HEAR program, replacing gas with induction can be very inexpensive, or even free.

## Laundry

**Heat pump clothes dryers** work by extracting moisture, more or less the way dehumidifiers do. They're gentler on clothes and don't require external venting to work. They're also cheaper and more efficient to operate. The only downside is that, for now, they are slower than traditional clothes dryers. If you're eligible for the HEAR rebate, you can get up to \$840 towards an air source heat pump clothes dryer.

## Heat Pump Hot Waters

Much like an air source heat pump pumps heat energy from outside into your home, heat pump water heaters transfer heat into your hot water tank. Typically, they draw heat from the air around them, usually in the basement. They can also work as part of a geothermal system. If you're eligible for the HEAR rebate, you can get up to \$840 towards an air source heat pump water heater.

## Solar PV Panels

**Solar photovoltaic (PV)** panels can be installed on rooftops or on ground mounts. If your home is a good candidate for them, they can provide all or most of the electricity you need. A system for a home in Green Bay will cost between \$18,000 and \$24,000 and save you about \$50,000 over its useful life (about 25 years). If you can think of it in financial terms, it's like a low-risk investment. In the meantime, you'll be avoiding the rising cost of energy and helping to preserve the environment. It will also increase the value of your home (except when it's time to assess property taxes). Focus on Energy offers a rebate of \$600 for each kW installed up to \$2400 for residential solar panels. Check to see if the Midwest Renewable Energy Association is running a Grow Solar group purchase program in Green Bay at <http://growsolar.org>.

## HEAR Program

The Home Electrification and Appliance Rebate program is the second of two rebates created by the Inflation Reduction Act. In Wisconsin, it's administered by Focus on Energy. Its purpose is to make the technologies we've been discussing more affordable for most households. Unlike the HOMES rebate, it's income qualified. This means that in order to use it you will need to earn less than 150% of the area median income (AMI). Go to <https://focus-ira.clearesult.com/> to check to see if your household qualifies. Depending on your income, there are two tiers:

- Less than 80% AMI: If your household income is less than 80% of AMI, you will be eligible for rebates for 100% of the cost of the upgrade, up to certain amounts (see table).

- 80-150% AMI: If your household income falls between 80 and 150% of AMI, you will be eligible for 50% of costs up to certain amounts.

<b>HEAR Upgrade</b>	<b>Potential Rebate Amount</b>	<b>Details</b>
Energy Star® heat pump for space heating/cooling*	Up to \$8,000	Registered Contractor
Electrical load service center (electrical panel)	Up to \$4,000	Registered Contractor
Electrical Wiring	Up to \$2,500	Registered Contractor
Energy Star® Insulation, ventilation, air sealing	Up to \$1,600	Registered Contractor
Energy Star® electric heat pump clothes dryer*	Up to \$840	Store Purchase
Energy Star® electric stove, cooktop, or range*	Up to \$840	Store Purchase
Energy Star® electric heat pump water heater	Up to \$1,750	Registered Contractor or Store Purchase

## Some fine print

- Upgrades marked with an asterisk (\*) in the table above are eligible for new construction projects.
- The rebates are for replacing *gas* and other non-electric appliances, so you would not be able to replace an older electrical coil stove with an induction stove, for example.
- Households cannot use more than \$14,000 worth of HEAR rebates.

## How to access HEAR

As you can see in the chart, some upgrades are marked “registered contractor,” and others are marked, “store purchase.” Focus on Energy has created a network of registered contractors and stores where you can get the rebate. You can find the list and get prequalified at <https://focusonenergy.com/ira-hear>.

## Focus on Energy Rebates

In addition to running federal programs like HOMES and HEAR, Focus on Energy also offers substantial state rebates for appliances and other energy efficiency/clean energy-related items. Go to <https://focusonenergy.com/residential> to see what’s available.

## Financing Programs

There are two financing programs available to Green Bay residents that can be used for energy efficiency projects.

### Home Improvement Loan Program (HILP)

This is a City of Green Bay program that’s run by **NeighborWorks Green Bay** (<https://nwgreenbay.org>). HILP is a loan program designed to help with home improvement projects, including energy efficiency and weatherization. *It’s a zero percent interest loan that does not need to be paid back until the house is sold.* To qualify, your household income must be at 80% of AMI or lower. There are a number of other requirements. For more information, contact NeighborWorks at (920) 448-3075, or email [info@nwgreenbay.org](mailto:info@nwgreenbay.org).

### More Like Home

You may qualify for Wisconsin Housing and Economic Development Authority’s (WHEDA’s) More Like Home loan, which provides a low interest loan of up to \$50,000 for specific home improvements, including some related to energy efficiency. WHEDA is a state agency that helps develop affordable housing. More information is available at <https://morelikehomeloan.wheda.com/>.

# Part 4: Glossary

The world of energy efficiency and clean energy is full of unfamiliar terms and acronyms!

***air source heat pump (ASHP)*** — An air source heat pump is a machine that moves heat in or out of a home using a compressor. It can both warm your home in winter and cool it in summer.

***area median income (AMI)*** — Area median income is the middle income level for families in a certain region. Half the families earn more than this amount, and half earn less. Household income for the HEAR and HOMES programs is measured in terms of AMI, it varies according to how many people are in your household. Go to Focus on Energy at <https://focusonenergy.com/home-energy-rebates> and select "income qualification."

***asbestos*** — Asbestos is a group of minerals that were once used to insulate buildings and make them fire resistant. It can harm your lungs if tiny fibers are breathed in.

***compressor*** — A compressor is a device that squeezes a gas into a smaller space. This makes the gas hotter or helps it move through a system like an air conditioner.

***convection*** — Convection is when warm air rises and cool air sinks, causing air to move around. This movement is part of what's called the "stack effect" in buildings.

***energy*** — Energy is the power that makes things work or move. We use energy every day to heat homes, run machines, and charge devices.

***energy burden*** — Energy burden is the share of a family's income that goes toward paying energy bills. A high energy burden means energy costs take up a big part of a household's money.

***fossil fuels*** — Fossil fuels are energy sources like coal, oil, and natural gas that come from ancient plants and animals. When burned, they create energy but also pollution.

***fracking*** — Fracking is a way to get oil and natural gas from deep underground by pumping water and chemicals into rock. It can bring energy, but may harm the land and water.

***heat pump clothes dryers*** — Heat pump clothes dryers remove moisture from clothes using a heat pump instead of hot air vents. They use less energy and do not need an outside vent.

**home energy assessment** — A home energy assessment is a checkup that looks at how much energy your home uses. It helps find ways to make your home warmer, cooler, or more efficient.

**Home Electrification and Appliance Rebate (HEAR)** — The HEAR rebate helps families pay for electric appliances and systems that use less energy. It is meant to make clean energy options more affordable. Learn more at <https://focusonenergy.com/ira-hear>.

**HOMES rebate** — The HOMES rebate gives money back to homeowners who make their homes more energy-efficient. It helps lower energy bills and improve comfort. Learn more at <https://focusonenergy.com/ira-homes>.

**Homo Erectus** — Homo Erectus was an early human species that lived long before modern humans. They walked on two legs and used simple tools.

**Homo Sapiens** — Homo Sapiens is the scientific name for modern humans. We have larger brains and more advanced skills than earlier human species.

**HVAC** — HVAC stands for heating, ventilation, and air conditioning. It includes the systems that warm, cool, and bring fresh air into buildings.

**induced current** — Induced current is electricity made when a magnetic field moves near a wire. It is used in things like generators and transformers.

**induction** — Induction is the process of making electricity or heat without touching something directly. Induction cooktops, for example, heat pans using magnetic fields.

**Industrial Revolution** — The Industrial Revolution was a time when many new machines were invented. It changed how people worked and made goods, moving from hand tools to factories.

**Inflation Reduction Act (IRA)** — The Inflation Reduction Act is a U.S. law that helps lower costs for families and supports clean energy. It also encourages companies to reduce pollution.

**knob and tube wiring** — Knob and tube wiring is an old type of electrical wiring found in many older homes. It can be unsafe today if it is damaged or overloaded.

**median income** — Median income is the middle value of all incomes in a group. Half the people make more than the median, and half make less.

**natural gas** — Natural gas is a fuel that comes from underground and is used for heating and cooking. It burns cleaner than coal but still creates pollution.

**NeighborWorks Green Bay (NWGB)** — NeighborWorks Green Bay is a local nonprofit that helps people find housing and improve their homes. They support safe, affordable, and energy-efficient living.

**NEWCAP** — NEWCAP is a community organization that provides help with housing, energy bills, food, and other needs. It supports families with low incomes in many counties, including Brown.

**phantom power loads** — Phantom power loads happen when devices use electricity even when turned off. Chargers, TVs, and game systems often do this unless they are unplugged.

**radon** — Radon is a natural gas that comes from the ground and can enter homes. It has no smell and can be harmful if people breathe it for many years.

**smart thermostat** — A smart thermostat learns your routine and controls your home's temperature automatically. It can save energy by heating or cooling only when needed.

**solar photovoltaic panels** — Solar photovoltaic panels are devices that turn sunlight into electricity. They help power homes and reduce the need for fossil fuels. Not to be confused with passive solar water heating.

**stack effect** — *see convection.*

**watt meter** — A watt meter is a tool that shows how much electricity a device uses. It helps people learn which appliances use the most energy.

**windmill** — A windmill uses the power of the wind to turn blades. This turning motion can pump water or make electricity.

# Part 5: Resources

*All of the resources below are subject to change.*

## Clean Energy and Energy Efficiency Programs

### City of Green Bay

- **Home Improvement Loan Program (HILP)**

This is a zero interest loan program for qualified borrowers. It does not need to be paid back until home is sold. Contact NeighborWorks Green Bay for more information. <https://nwgreenbay.org> or (920) 448-3075.

### NEWCAP

NEWCAP operates a number of programs that can be used by low income households. Go to <https://www.newcap.org> and click “Start Here” at the top of the screen to make use of their programs. Or call 1 (800) 242-7334.

- **Low Income Heating Assistance Program (LIHEAP)**

The energy burden on low income households living in older homes in Green Bay can be more than 6x higher than the Wisconsin average! LIHEAP can help lower costs.

- **Weatherization Assistance Program (WAP)**

If you have used LIHEAP in the past and meet the requirements of the program, NEWCAP will send a team to weatherize your home. This includes new insulation, air sealing, and even an upgraded furnace.

### Focus on Energy

Focus on Energy is a state-mandated organization that runs energy conservation and clean energy programs on behalf of Wisconsin utility companies. It was created by the Wisconsin state legislature. They run their own energy programs and also

administer federal programs. Their website is at <https://focusonenergy.com>. They have many programs, here are a few:

- **Residential Rebates**

Focus on Energy offers a range of rebates for everything from insulation to rooftop solar PV panels. Many of these rebates are accessed through contractors but go to <https://focusonenergy.com/residential> to make sure that you're not missing out. Some of the rebates have annual maximums, so be sure to contact Focus on Energy as soon as you have decided to use one.

- **Focus on Energy Marketplace and Free Energy Packs**

Focus on Energy offers heavily discounted energy efficiency products (like smart thermostats) on their marketplace website. They also offer "Free Energy Packs" to WPS customers. Shipping on these is free.

- **Commercial Rebates**

In addition to rebates for residential customers, they also offer ones for commercial energy users. Go to <https://focusonenergy.com/business> to see what's available.

- **Energy Advisors and Technical Assistance**

For businesses, nonprofit, and other commercial users, Focus on Energy has a range of services designed to help optimize their buildings and operations.

## State of Wisconsin

- **More Like Home Loan Program (WHEDA)**

This is a low interest loan program for home improvements including ones related to energy efficiency. Go to <https://morelikehome.wheda.com> for information.

- **Power Up Wisconsin (WEDC)**

Power Up Wisconsin will provide grants and low interest loans for solar PV installations. However, it is still in the planning stages.

- **HEAR and HOMES Rebate programs (Focus on Energy)**

These are federal programs that are administered in Wisconsin by Focus on Energy. Go to <https://focusonenergy.com/home-energy-rebates> for more information and to get started.

# Federal Government

- **Tax Credits (IRS)**

Consult with a tax professional for the latest information.

- Investment Tax Credit for Energy Properties (Section 48): This can be applied to commercial geothermal projects and can provide up to 40% of the costs as a tax credit, or as ‘direct pay’ if you are a tax exempt organization.
- Alternative Fuel Vehicle Refueling Property Credit (30c): 30% tax credits for the purchase and installation of EV charging equipment is available for both residential and commercial purposes through June 30<sup>th</sup>, 2026.

# Informational Resources

## City of Green Bay

- **Energize Green Bay (EGB)**

EGB is Green Bay’s public outreach campaign on energy efficiency and clean energy. It’s website is <https://greenbaywi.gov/energize>.

- **Resilience and Sustainability Hub**

Green Bay’s Resilience and Sustainability Hub is a one-stop information resource that brings together all of the City’s initiatives related to resilience and sustainability. It can be found at <https://greenbaywi.gov/sustainability>. Among other things, you will find Green Bay’s *Clean Energy Plan*.

## Brown County

- **Brown County Library**

Our local, award-winning library is a great place to find information on clean energy, energy efficiency, DIY upgrades, and related topics. Green Bay has three locations: Central (515 Pine St.), East (2253 Main St.), and Southwest (974 Ninth St.).

# State of Wisconsin

- **Public Service Commission and the Office of Energy Innovation (OEI)**

OEI is Wisconsin's principal office dedicated to the clean energy transition. As part of the Public Service Commission, you will find it at <https://psc.wi.gov>. You will also find information about the PSC's many programs, including grant opportunities.

- **Focus on Energy**

It goes without saying that Focus on Energy is Wisconsin's largest source of energy information. <https://focusonenergy.com>

**Need help?**

**Call 211 to get  
connected to  
local and state  
services.**



For more information, go to:  
<http://greenbaywi.gov/energize>  
<http://greenbaywi.gov/sustainability>