# *Home Energy Efficiency Handbook*

Homeowners

ALL-IN CLARK COUNTY

BOLD ACTION FOR A SUSTAINABLE FUTURE

*Conserve energy and save money!*

# Foreword

Balancing energy costs with other expenses can be challenging for many Clark County residents. The tips in this Home Energy Efficiency Guide are ways to lower energy usage and energy bills.

This guide can help you:

1. Understand your home's current energy use
2. Choose the right actions to use less energy at home

By using some or all the tips in this guide, you will be able to ***use less energy and save money***.

On behalf of All-In Clark County, it's our pleasure to share the resources in this guide. We are committed to reducing our region's contribution to climate change and preparing for its impacts.

# How to Use This Guide

This guide is designed for homeowners seeking practical ways to improve their home's energy efficiency, performance, and comfort.

Each chapter provides energy savings tips for different aspects of your home, such as laundry, lighting, and heating and cooling systems.

The first section introduces the basics of home energy efficiency and offers guidance on where to start.

The QR codes link to videos and other online resources that demonstrate how to apply these energy savings tips in your home.

The Rebates, Incentives, and Resources section includes QR codes that link to relevant websites.

A Glossary is included at the end, defining commonly used terms related with home upgrades, appliances, and energy efficiency.

# Table of Contents



# Understanding Energy Efficiency

## Four Components of an Energy Efficient Home

1. ***Home insulation*** and preventing air leakage are key to keeping your home's indoor heating and cooling contained. The walls, roof, windows, and doors are all parts of this system.

2. ***Controlled ventilation*** is very important where air pollution is a health risk. Furnaces, water heaters, clothes dryers, exhaust fans, and other devices all affect your home's indoor air.

3. ***Heating and cooling*** systems are crucial for comfort and safety in Southern Nevada. Energy efficient HVAC systems can be designed to reduce the need for bulky units and lower energy costs.

4. ***Energy efficient appliances*** such as refrigerators, dishwashers, clothes washers and dryers help:
   Reduce overall energy use
   1. Reduce overall energy use
   2. Lower utility bills
   3. Act as a buffer against rising energy prices

## Benefits of Saving Energy

Lowering your energy use or participating in energy savings deals like NV Energy's Smart Thermostat installation can ***create savings on your utility bill*** (see Rebates, Incentives, and Resources section).

Energy efficiency can improve indoor air quality, offering ***health benefits*** through better air circulation and cleaner energy sources.

Energy efficient homes can also help ***ease the strain on the energy grid***.

## Cost and Budgeting

Upgrading buildings can be expensive– which is why we've organized sections by cost.

1. Use ***affordable tips and tricks*** for home maintenance
2. Use ***regional incentives***, if your home or project is eligible
3. If possible, budget to ***upgrade appliances***

We want to help you make choices that are practical. If you decide to install a big-ticket item, it is also important to work with a ***licensed contractor***.

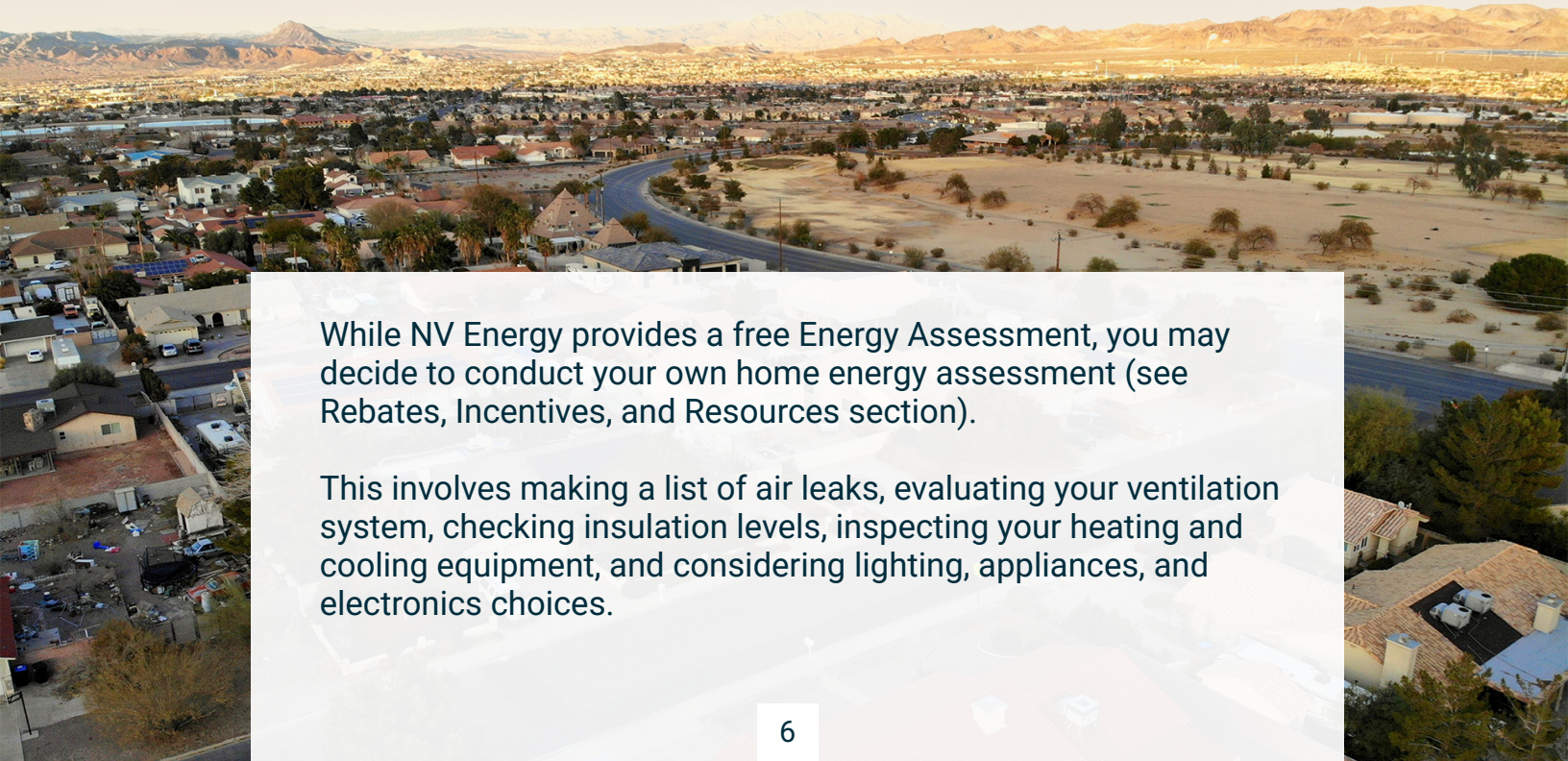
# Where Should I Start?

## The Home Energy Assessment

A home energy assessment is one way to help you understand your current energy usage and actions you can take to improve energy efficiency.

An energy advisor will ask questions about your home, its size, its features, appliance specifications, and your energy usage.

After creating a home energy audit report, they will share:
1. How your home energy efficiency can be improved
2. Potential cost savings



While NV Energy provides a free Energy Assessment, you may decide to conduct your own home energy assessment (see Rebates, Incentives, and Resources section).

This involves making a list of air leaks, evaluating your ventilation system, checking insulation levels, inspecting your heating and cooling equipment, and considering lighting, appliances, and electronics choices.

# Energy Efficiency for Homeowners

## What's in this section:

**Appliances and Home Electronics**
**Insulation and Air Sealing**
**Lighting**
**Heating, Cooling, and Ventilation (HVAC)**
**Indoor and Outdoor Water**
**Home EV Charging**

## In This Section…

Each appliance or item listed in this section includes tips, repairs and updates to keep your home as energy efficient as possible. Frequency of tip is highlighted (Once, monthly, recurring, etc.) and cost is indicated by the number of dollar signs:

| | |
|---|---|
| **$** | *- low cost* |
| **$$** | *- moderate* |
| **$$$** | *- expensive* |

# Appliances and Home Electronics

**Energy Savings at a Glance:**

- *Proper dishwasher maintenance can reduce energy use by 10-20%.*
- *Setting proper refrigerator and freezer set points can save 25% on energy usage.*
- *Using cold water for laundry saves an average of $20 annually.*

## Computer/Small Electronic Devices

| | | |
|---|---|---|
| Recurring | $ | Enable sleep mode on monitor. |
| Recurring | $ | Unplug when not in use or use a smart power strip. |

## Refrigerator

| | | |
|---|---|---|
| Every 6 months | $ | Test refrigerator seals. |
| Every 6 months | $ | Clean condenser coils. |
| Every 6 months | $ | Replace water and air filter. |
| Monthly | $ | Clean refrigerator door seals. |
| Once | $ | Set temperature between 35-38 degrees Fahrenheit. |

## Freezer

| | | |
|---|---|---|
| Every 6 months | $ | Clean freezer door seals. |
| Once | $ | Set temperature between 0-5 degrees Fahrenheit. |

## Stove/ Oven/ Vent Hood

| | | |
|---|---|---|
| Recurring | $ | Check for blue flames in natural gas appliances.* |
| Recurring | $ | Clean grates. |
| Monthly | $ | Clean vent hood and filter. |
| Every 3 months | $ | Run oven clean cycle. |

**If the flame is yellow or orange, it may indicate incomplete combustion. Contact a qualified technician.*

# Appliances and Home Electronics

## Cooking

| | | |
|---|---|---|
| Recurring | $ | Cover pots and pans while cooking. |
| Recurring | $ | Use electric kettle instead of running hot water. |
| Once | $ | Use microwave oven when possible. |
| Recurring | $ | Use vent when cooking with natural gas. |

## Dishwasher

| | | |
|---|---|---|
| Recurring | $ | Only run dishwasher when full. |
| Recurring | $ | Scrape dishes before placing in dishwash. |
| Recurring | $ | Use an air-dry setting, if applicable. |
| Recurring | $ | Use eco-mode, if applicable. |
| Recurring | $ | Use rinse aid. |
| Bi-weekly | $ | Clean dishwasher filter. |
| Bi-weekly | $ | Clean spray arms. |
| Monthly | $ | Run cycle with cup of white vinegar. |

## Washer

| | | |
|---|---|---|
| Recurring | $ | Use cold water when possible. |
| Recurring | $ | Run washer with a full load. |
| Every 3 months | $ | Clean detergent door. |

## Dryer

| | | |
|---|---|---|
| Recurring | $ | Dry clothes when machine is full. |
| Recurring | $ | Air dry when you can. |
| Recurring | $ | Use a moisture sensor, if applicable. |
| Recurring | $ | Dry towels/heavier cotton in separate load from lighter weight-clothes. |
| Recurring | $ | Remove lint from lint trap before every use. |
| Every 6 months | $ | Inspect hoses for blockages/lint. |
| Every 6 months | $ | Clean exterior lint vent. |

# Insulation and Air Sealing

**Energy Savings at a Glance:**

- *Homeowners can save an average of 15% on heating and cooling costs by air sealing and adding insulation.*
- *Proper insulation can also help reduce outside noise and prevent pollen, dust, and insects from entering your home.*

## Insulation

| | | |
|---|---|---|
| Once | $$ | Install insulation to any attic floor. |
| Once | $$$ | Install insulation to garage door. |

## Air Sealing

| | | |
|---|---|---|
| Annually | $ | Schedule or self-assess for air tightness. |
| Annually | $ | Caulk, weatherstrip, and seal doors, windows, and air leaks. |
| Once | $$ | Install foam gaskets behind outlets. |
| Annually | $$$ | Seal air leaks around chimneys, furnaces, and gas-fired water heater vents with fire resistant material. |

## Windows

| | | |
|---|---|---|
| Recurring | $ | Close curtains to limit sunlight heating your home on hot summer days. |
| Every 3 months | $ | Check for window drafts. |
| Once | $$ | Install blackout curtains. |
| Once | $$ | Install reflective films. |
| Once | $$$ | Add storm windows/panels. |
| Annually | $$ | Use foam sealant on larger gaps around windows. |
| Once | $$$ | Install exterior white shades to reflect heat. |
| Once | $$$ | Replace single-pane windows with double- pane low-emissivity windows. |

# Lighting

**Energy Savings at a Glance:**

- *LED lightbulbs use up to 90% less energy and last 25 times longer than incandescent light bulbs.*
- *The average LED household saves about $225 in energy costs per year.*


## Sensors/Timers

| | | |
|---|---|---|
| Once | $$ | Install energy efficient lighting components, controls, and systems. |

## Smart Lighting Systems

| | | |
|---|---|---|
| Once | $$ | Install task lights and reduce ambient light elsewhere. |

## LED Lightbulbs

| | | |
|---|---|---|
| Recurring | $ | Turn off lights when not in use. |
| Once | $$ | Purchase LED lighting. |
| Once | $$ | Utilize recycling program for fluorescent lights. |

## Outdoor Lighting

| | | |
|---|---|---|
| Once | $$ | Install outdoor solar lights. |
| Once | $$ | Install reflectors, deflectors, or covers. |
| Once | $$ | Install lighting timers. |
| Once | $$$ | Consider photo or motion sensors. |

# Heating, Ventilation, and Air Conditioning (HVAC)

**Energy Savings at a Glance:**

- *Proper dishwasher maintenance can reduce energy use by 10-20%.*
- *Setting proper refrigerator and freezer set points can save 25% on energy usage.*
- *Using cold water for laundry saves an average of $20 annually.*

## Air Conditioning Unit

| | | |
|---|---|---|
| Every 6 months | $ | Ensure proper airflow around outdoor AC unit. |
| Annually | $ | Schedule a summer tune-up. |


## Programmable Thermostat

| | | |
|---|---|---|
| Once | $$ | Install programmable thermostats. Check for available rebates. |
| Recurring | $ | When turning on your AC, avoid setting your thermostat lower than usual; it won't cool your space any faster. |


## Air Filter

| | | |
|---|---|---|
| Every 3 months | $-$$ | Replace air filter seasonally, in accordance with product specifications. |

## Ceiling Fans

| | | |
|---|---|---|
| Once | $$$ | Install ceiling fans. |
| Every 6 months | $ | Set fan motor to counterclockwise spin in summer to create breeze. |
| Every 6 months | $ | Set fan motor to clockwise spin in winter. |

# Heating, Ventilation, and Air Conditioning (HVAC)

## Ducts

| | | |
|---|---|---|
| Annually | $ | Schedule an air capacity check once a year. |
| Once | $$$ | Install new duct systems, if necessary. |

## Ventilation

| | | |
|---|---|---|
| Recurring | $ | Use exhaust fans in bathrooms. |
| Recurring | $ | Use range hoods in kitchen when cooking. |
| Once | $$$ | Install exhaust, supply, or balanced ventilation system. |

## Home Heating System

| | | |
|---|---|---|
| Recurring | $ | To help warm your home during cold months, open your blinds or curtains. |
| Recurring | $ | To help cool your home during warm months, close your blinds or curtains. |
| Monthly | $ | Clean furnace filters. |
| Annually | $$$ | Schedule a cleaning for vents, baseboard heaters, and radiators. |
| Every 3 months | $ | Eliminate trapped air from hot-water radiators. |
| Once | $ | Install heat-resistant radiator reflectors. |
| Once | $$$ | Invest in high-efficiency low-noise fans. |

# Heating, Ventilation, and Air Conditioning (HVAC)


## Heat Pump Systems

| | | |
|---|---|---|
| Once | $$$ | Upgrade to a higher efficiency heat pump. |

## Home Cooling Systems

| | | |
|---|---|---|
| Annually | $$ | Schedule a professional AC tune-up before summer. |
| Once | $$ | Provide shade for outdoor AC unit, while maintaining clear airflow on all sides. |

# Indoor and Outdoor Water

**Energy Savings at a Glance:**

- *A household saves on average 3-5% on total water heating costs by lowering water temperature by 10 degrees.*
- *A family of four taking daily 5-minute showers with a high efficiency showerhead can save up to 20,000 gallons annually.*
- *Tankless water heaters heat water only when needed, eliminating energy lost during standby operation and saving 8-34% water.*
- *Using less water reduces both the amount of wastewater to be treated and the energy required to treat the region's wastewater.*

## Drain Water Heat Recovery (DWHR)

DWHR is a system that takes the heat from used warm water, like from a shower, and uses it to warm up the cold water coming into your home.

| | | |
|---|---|---|
| Once | $$$ | Install a drain water heat recovery (DWHR) system. |

## Hot Water Heater

| | | |
|---|---|---|
| Once | $ | Set hot water temperature to 120-degrees Fahrenheit. |
| Every 3 months | $ | Drain a quart of water from the tank. |
| Once | $$ | Install heat traps on hot/cold pipes to prevent heat loss. |

## Shower/Bath/Toilet/Faucet

| | | |
|---|---|---|
| Once | $ | Limit showers to 5 minutes. |
| Once | $ | Do not throw anything away in the toilet. |
| Every 3 months | $ | Check for toilet leaks/repairs. |
| Annually | $ | Clean/replace aerator. |
| Once | $$ | Install high-efficiency fixtures. |

# Indoor and Outdoor Water

## Irrigation

| | | |
|---|---|---|
| Once | $$ | Install drip irrigation. |
| Recurring | $ | Turn off irrigation clock on rainy days. |
| Monthly | $ | Periodically, check sprinklers for proper function and leaks. |
| Every 3 months | $ | Adjust outdoor watering system seasonally per SNWA or VVWD guidelines. |

## Landscaping

| | | |
|---|---|---|
| Once | $$$ | Install xeriscaping: replace grass with drought-tolerant plants. |

# Vehicles

**Energy Savings at a Glance:**

- *Charging your EV at home costs just 3-6¢ per mile compared to 12-20¢ per mile at public fast chargers.*
- *Charging during off-peak hours can lower your electricity bill by 30-50%.*

## Electric Vehicles

Recurring

$ *Avoid charging during peak demand (consult your utility provider).*

# Rebates, Incentives, and Resources

## What's in this section:

***Energy Efficiency Programs***

1. NV Energy
2. Boulder City
3. Overton Power District
4. Southwest Gas
5. Nevada Clean Energy Fund
6. State-Wide Programs

***Water Conservation***

1. Southern Nevada Water Authority
2. Virgin Valley Water District

***National Assistance & Loans***

# Energy Efficiency Programs

## NV Energy

*NV Energy is Nevada's primary electric utility, providing power to approximately 2.4 million customers across the state. It serves major communities including Las Vegas, Reno-Sparks, Henderson, and Elko, as well as many surrounding areas. NV Energy offers a range of customer programs, from energy efficiency rebates and renewable energy incentives to financial assistance and flexible billing options.*

### FREE SMART THERMOSTAT PROGRAM

NV Energy customers are eligible to receive a free smart thermostat with participation in FlexResponse events.

### AC TUNE-UP INCENTIVE PROGRAM

NV Energy customers are offered an incentive to offset the cost of an air conditioning unit tune up.

### FREE ENERGY ASSESSMENT

NV Energy customers are eligible for a free PowerShift In-home Energy Assessment that provides personalized energy-saving and cost-saving tips.

### QUALIFIED APPLIANCE REPLACEMENT PROGRAM

NV Energy customers who own or rent their home and meet income eligibility requirements can receive free replacements for select appliances.

# Energy Efficiency Programs

## Boulder City

*Unlike most of Southern Nevada, Boulder City operates its own municipal utility and is not served by NV Energy. However, the city offers a range of energy efficiency programs for residents and businesses, including rebates for smart thermostats, smart irrigation controllers, and solar water heaters. These initiatives aim to lower utility costs, reduce energy consumption, and promote sustainable resource use in the community.*

### SMART THERMOSTAT REBATE

Provides $75 off or 50% off the MSRP.

### SMART IRRIGATION CONTROLLERS REBATE

Provides $75 off or 50% off the MSRP.

### SOLAR WATER HEATER REBATE

Provides $200 rebate for an addition of a solar domestic water heating system.

### AC UPGRADE REBATE

Provides various rebates for replacing central AC and/or heat pumps.

### POOL PUMP REBATE

Provides $100-$200 rebate for high efficiency pool pumps.

# Energy Efficiency Programs

## Overton Power District #5

*Overton Power District #5 (OPD5) is the primary electric utility serving northeastern Clark County, Nevada, including communities such as Overton, Logandale, Bunkerville, and Mesquite. Overton Power District also supports energy efficiency through customer programs, promotes grid modernization, and engages with the community through outreach and education initiatives.*

*Overton Power District currently does not offer any energy incentives.*

## Southwest Gas

*Southwest Gas is the primary natural gas provider for Southern Nevada, serving communities including Las Vegas, Henderson, Mesquite, and Laughlin, as well as parts of northern Nevada. The company delivers natural gas service for residential, commercial, and industrial customers, while promoting energy efficiency through rebates, conservation programs, and customer education. It also supports community initiatives and offers assistance programs to help income-qualified customers manage their energy costs.*

***TANKLESS NATURAL GAS WATER HEATER REBATE***

*Nevada Customers of SW Gas are eligible for a rebate of $225 when purchasing a Tankless Natural Gas Water Heater.*

# Energy Efficiency Programs

## Nevada Clean Energy Fund (NCEF)

*The Nevada Clean Energy Fund is an independent nonprofit green bank launched in 2022 to provide financial and technical resources that accelerate clean energy growth, reduce energy costs, and create jobs across the state. NCEF works with communities, businesses, schools, Tribes, affordable housing projects, and other partners to expand access to renewable energy, energy efficiency upgrades, electrification, and clean energy technologies.*

### RE-UP PROGRAM

*Provides financing for energy efficiency audits, upgrades, and projects.*

# Energy Efficiency Programs

## State-Wide Programs

***Nevada also has state-level energy programs that promote clean energy, efficiency, and lower emissions through incentives, rebates, and technical support for solar, EV infrastructure, and efficient building upgrades.***

### ENERGY ASSISTANCE PROGRAM

*Helps low-income households pay for home energy costs by providing annual financial assistance toward heating and electric bills.*

### WEATHERIZATION ASSISTANCE PROGRAM

*Provides energy conservation measures like air sealing, insulation, and more for low-income families.*

### SAVE ENERGY NV

*Shares a location-based energy incentive finder alongside energy efficiency guides in both English and Spanish.*

# Water Conservation

## Southern Nevada Water Authority (SNWA)

*The Southern Nevada Water Authority is a not-for-profit, cooperative agency that manages water resources for Southern Nevada on a regional level. Serving wholesale water treatment and delivery for the greater Las Vegas Valley including Las Vegas, Henderson, North Las Vegas, Boulder City, and Laughlin, SNWA acquires and manages long-term water supplies, builds and operates regional water facilities, and leads water conservation and sustainability efforts.*

*The Las Vegas Valley Water District operates under the SNWA and is responsible for direct water delivery and billing to customers in Las Vegas and parts of unincorporated Clark County.*

### INDOOR WATER CONSERVATION TIPS

*A website with tips and tricks to saving water at home.*

### SMART IRRIGATION CONTROLLER REBATE

*Provides 50% off the purchase price of a Smart Irrigation Controller, or up to $100.*

### INDOOR WATER AUDIT AND RETROFIT KIT

*Residential customers of Southern Nevada Water Authority member agencies are eligible to receive an indoor water audit and retrofit, with free classes also available.*

### WATER SMART LANDSCAPES REBATE

*Residential customers of SNWA member agencies are eligible to receive a rebate of $5 per square foot of grass removed and replaced with desert landscaping.*

### HOME LEAK SENSOR REBATE COUPON

*SNWA offers a rebate covering 50 percent of the purchase price of a home leak sensor, up to a maximum of $200.*

# Water Conservation

## *Virgin Valley Water District (VVWD)*

***The Virgin Valley Water District is a governmental water utility serving the communities of Mesquite and Bunkerville. VVWD provides water, oversees system design and development for local developers, and promotes conservation through public education and water resource management.***

### *OUTDOOR WATER CONSERVATION TIPS*

*A website with tips and tricks to saving water with landscaping.*

# National Assistance and Loans

### *USDA SINGLE FAMILY HOUSING REPAIR LOANS & GRANTS*

*Provides loans to very-low-income homeowners to repair, improve or modernize their homes or grants to elderly very-low-income homeowners to remove health and safety hazards.*

### *DEPT. OF HEALTH AND HUMAN SERVICES LOW INCOME HOME ENERGY ASSISTANCE PROGRAM*

*Provides financial assistance for qualifying low-income Nevadans with the cost of home energy.*

# Glossary

**Aerator** – the device attached to the end of a faucet that mixes air with the water stream and helps with water conservation and filtering.

**Air capacity** – ability of a home's HVAC system to effectively heat or cool the indoor space .
Air tightness – ability of a building's envelope to resist air leakage through unintended openings like cracks and gaps.

**Baseboard heaters** – heating system installed on the base of a wall.

**Caulk** – to seal a gap with a waterproof filler and sealant; caulking can help prevent unnecessary energy loss and maintain a stable indoor climate.

**Condenser coils** – a component in air conditioning and refrigeration systems that helps the refrigerant release heat. Typically found at the back or bottom of the appliance; dirty coils impede heat transfer and require more energy.

**Controlled ventilation** – the design and operation of systems that optimize fresh air intake and air quality needs.

**Deflectors** – an accessory that scatters or directs light from a fixture to improve efficiency and minimize harsh glare.

**Double-pane low-emissivity windows/ Low-E windows** – energy efficient windows with an insulating gas between two panes of glass; they reflect heat and helps keep homes cooler in summer and warmer in winter.

**Drain Water Heat Recovery** – a system that captures heat from hot water and uses it to preheat incoming cold water.

**Duct systems** – the network of air passages that distributes heated or cooled air through the home.

**Dryer hose** – a tube used to vent hot air, moisture, and lint from a dryer to the outside of a building. This is typically located in the back of a dryer. Cleaning the lint trap allows for better efficiency and is crucial for home fire safety.

**Energy Star** – a certification established in 1992 by the US EPA and US DOE. Appliances that meet certain energy efficiency standards can display the energy star logo.

**Foam gaskets/tape** – flexible sealing and insulating material to be placed between two surfaces to prevent leaks and reduce a home's HVAC load.

**Foam sealant** – a type of sealant that expands after application to fill gaps, cracks, and crevices.
Heating and cooling system – a system designed to regulate the temperature, humidity, and air quality within a home.

**Heat pump system** – a type of HVAC system that can both heat and cool a building by transferring heat with reversible heat transfer cycles; some types include ductless air-source heat pumps, mini split heat pumps, and reverse cycle chillers.

**Home Energy assessment** – an evaluation of a home's energy consumption and efficiency.
Home heating system – generates and distributes heat as part of the HVAC system, and typically refers to furnaces, boilers, or heat pumps.

**HVAC** – abbreviation for Heating, Venting, and Air Conditioning.
Insulation – the ability to resist heat transfer and flow between the house and the outside.

**LED** – light emitting diode that produces light up to 90% more efficiently than incandescent light bulbs.

**Radiators** – a component of a heating system that transfers heat to a room from hot water circulation.

**Reflectors** – surfaces designed to reflect light or heat and helping light distribute efficiently and minimize loss.

**Refrigerator seals** – the airtight barrier between the inside of the fridge and the outside that prevents cool air from escaping.

**Rinse aid** – liquid additive for dishwashers to help dishes rinse clean and dry faster.

**Smart lighting systems** – integrated technological systems that allow for dynamic adjustments to light levels based on occupancy, time of day, and natural light available.

**Spray arms** – rotating arms that distribute water in a dishwasher, typically located below the lower dishrack and above the upper dishrack.

**Storm windows** – secondary windows installed either outside/inside existing windows to improve energy efficiency and provide additional protection.

**Ventilation system** – the process that supplies fresh air to an enclosed space, removes stale or polluted air, and maintains air quality, temperature, and humidity.

**Weatherization** – process of protecting a building from the elements and improving its energy efficiency by adding insulation, sealing air leaks, and improving ventilation.

**Weatherstrip** – the process of sealing openings around doors and windows.

**Xeriscaping** – landscaping that requires little/no irrigation and makes use of native plant or drought-tolerant species, reducing water use.

# Conclusion

This guide and accompanying resources reflect All-In Clark County's commitment to serving the community and addressing the regional impacts of climate change.

By providing our comprehensive energy efficiency guidance for homes, we are empowering residents to save money, extend the life of their appliances, and improve the comfort of their homes.

On behalf of All-In Clark County, it is our pleasure to support our community as we address the local impacts of climate change.

Best,

Allin@clarkcountynv.gov