CUBA CITY
LIGHT & WATER

Electrification Guide

GET STARTED

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What is electrification?

Simply put, electrification is the act of modifying a "machine or system" to use electric power to function, rather than other fuel sources, such as gas.[1]

Most people use machines or systems daily which can be powered by one or the other. Many items can be electrified — and you might already be familiar with some of them! Electric vehicles, induction stovetops, and heat pump clothes dryers are all electric alternatives that can help reduce greenhouse gas emissions associated with a home.

While fully electrified homes only use electricity as their fuel source, there are many benefits to partial electrification. Electrification isn't all-or-nothing — even swapping out one or two appliances in your home can result in cost and energy savings for your family, as well as health and safety benefits.

Why electrify your home?

Converting your home's fuel source solely to electricity might seem like a daunting task. However, the payoff for you and your family in the long run could be substantial.

ELECTRIFYING IMPROVES HEALTH, SAFETY, AND QUALITY OF LIFE

- There are simple swaps you can make with outdoor power equipment, such as mowers, snowblowers, weed trimmers, and chainsaws, to eliminate harmful emissions while working outside. Swapping to electric also has unexpected benefits, like reduced noise[2], less maintenance, no fuel to store or oil to mix.
- Gas stoves have recently been linked to childhood asthma and increased indoor air pollution.[3] Switching to an electric option can give you and your family peace of mind when preparing meals.
- There are also the built-in safety features of electric-powered induction cooktops. These appliances rely on an electromagnetic field and direct contact to heat up the cookware, rather than the burner itself.[4] Induction cooktops heat up to 50% faster and shut off as soon as pots or pans are removed from the stove, reducing concerns about leaving the stove on and providing more independence for loved ones who might otherwise need assistance in the kitchen.[4]

The various benefits of electric appliances can add to an overall sense of well-being. Better air quality, reduced noise levels, and if you also weatherize your home, reduced draftiness or discomfort, making it feel more welcoming and secure. In fact, there's a studied link between air quality and mental health![5]

A path to cleaner energy and cost savings

ELECTRIFYING IS BETTER FOR THE ENVIRONMENT

Electric appliances produce zero emissions onsite, providing the potential for a home's energy source to be cleaner. With emissions-reduction goals in place around the country, it's likely the energy grid will become cleaner with time.
By electrifying all or part of your home now, you'll be ready for grid transitions in the years to come.

TEAMWORK FOR CARBON REDUCTION

WPPI Energy, the utility's wholesale power supplier, is on track to reduce CO_2 emissions 45% by 2025, when compared to 2005 levels.[6] As a member-owner of the joint action agency, the utility's goal is to be carbon neutral by 2050. This is in line with other Midwest utilities.[7] By using electricity as your home's energy source, you're helping us and your community stay on track for our collective carbon reducing goals.

ELECTRIFICATION CAN LEAD TO ENERGY AND COST SAVINGS

Outside of health benefits, which may have cost savings of their own, electrification can help households save money on energy expenses too. In fact, efficient home electrification could save a household between $1,050 to $2,585 in energy costs each year![8] That's nothing to sneeze at.

Electrifying some technologies will reduce customer bills, while other technologies may not. Work closely with your contractor to determine the best fit for you and your home.

Because of advances in technology, electric motors and heat pumps for home space and water heating can operate **three times more efficiently** than their combustion powered counterparts.[9] As an example, for every $1 of electricity you use to power an air-source heat pump, you can get $3 of useful heat!

Cost savings from electrification will depend on the price of fuels like natural gas, propane, or gasoline. Propane **users can see up to 50% savings on their average yearly heating costs** when switching to a heat pump.[10] Cost savings will also depend on whether a home can fully electrify appliances and remove any fixed service charges for a connection to the gas system or propane tank and delivery.

Appliance Electrified	Installed Cost
Lawn and snow equipment	$
Induction cooktop or standard electric dryer	$
Heat pump clothes dryer	$ $
Heat pump water heater	$ $ $
Air-source heat pump	$ $ $ $
Ground-source heat pump	$ $ $ $ $
Electric vehicle	$ $ $ $ $

This chart displays directionally the least to most expensive residential electric appliances. Installed costs can vary for different electric end uses and across different communities and installers. Rewiring America* publishes example price ranges for some of the equipment listed. Note vehicles and space heating equipment are the most expensive electrification upgrades.

* rewiringamerica.org/electrification-costs-estimates

Getting started – first steps towards electrification

If you've decided to take the plunge and begin electrifying your home, congratulations! You're on the path to improving your family's health, safety and environment.

We know electrification can seem like an overwhelming process so we're here to break it down for you. Many electrification goals can be achieved without major changes to your home's existing structure.

FIRST THINGS FIRST: WHAT CAN BE ELECTRIFIED?

- Items like stoves, water heaters, furnaces, boilers, fireplaces, clothes dryers, cars, and even lawn or snow equipment can be swapped for electric alternatives. While vehicles and lawncare items aren't necessarily built-in facets of your home, switching lawncare items for their electric counterparts can improve your family's outdoor air quality.[11]
- Additionally, fueling cars with electricity rather than gas is less expensive.[12] It's even potentially more convenient.[13] Can you imagine not needing to leave home to fuel up?

WORK WITH AN EXPERT TO CREATE A PLAN.

Now that we've identified some items that can be swapped out, it's important to keep in mind that the best (and most cost-effective!) strategy for electrifying your home is to have a qualified professional perform a complete energy audit of your home.

An energy audit, or energy assessment, "can help you determine how much energy your home uses, where your home is inefficient, and which problem areas and fixes you should prioritize to save energy and improve the comfort of your home."[14] The contractors performing the assessment should let you know about the overall health of your home and how efficiently it's running — which is important when it comes to understanding your home's energy use and patterns.

Something as simple as proper insulation or air sealing can help **reduce your energy costs** and help your home run more efficiently.[15]

Important: When you go into the energy audit, be sure to let your contractor know you are intending to electrify your home. This will help them identify different priorities that they might not otherwise consider. It will also help you make a concrete electrification plan. The entire team of contractors, energy auditors, and electricians should know how you intend to electrify your home to avoid issues later in setting up full electrification.

While you might not need to rewire or restructure your home to make these switches, it is important to consult with a qualified professional when significantly increasing electrical use at your home. Consider upgrading your home's current electric panel or implementing affordable switching technologies and obtaining any necessary permits to safely complete electric swaps.

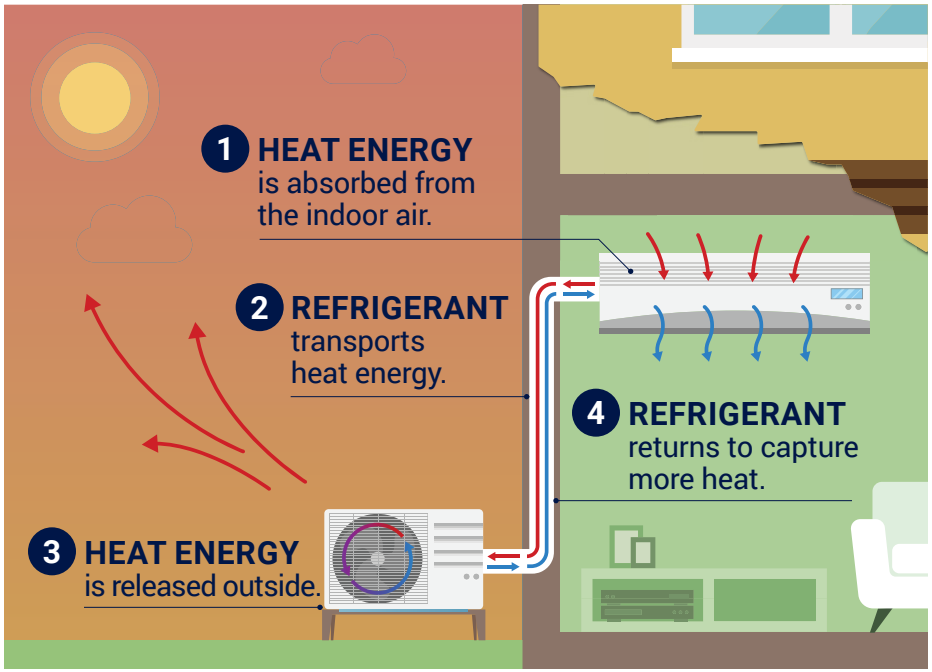
As you create your electrification plan, you will likely learn about new energy efficient technologies. Some of these technologies could include heat pumps, which can have the most impact on electrifying your home.

HEAT PUMPS
(for heating and cooling)

HEAT PUMP WATER HEATERS

HEAT PUMP CLOTHES DRYERS

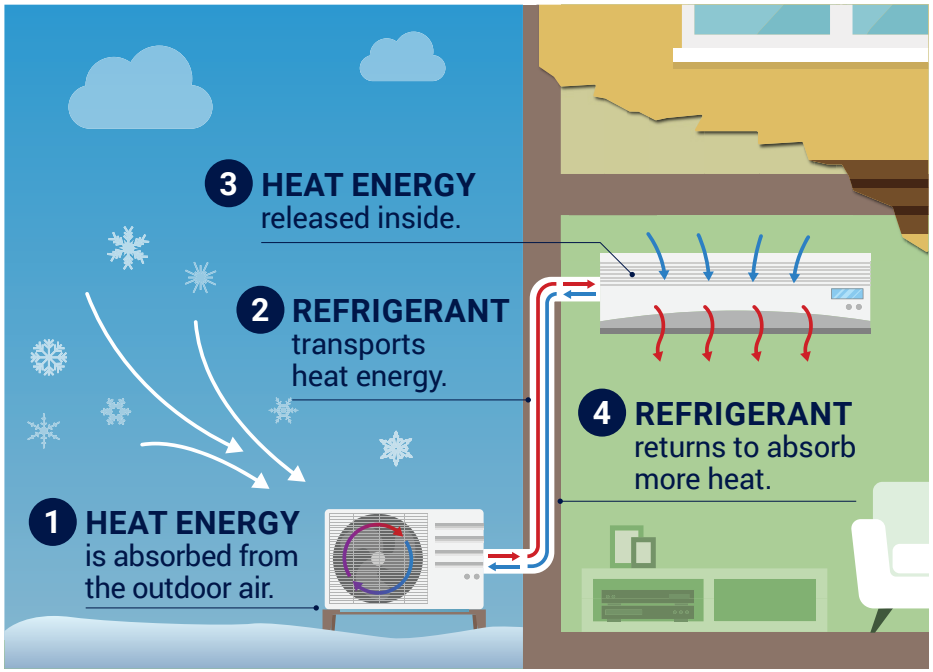
COOLING FUNCTIONALITY



Heat pumps offer an energy efficient alternative to traditional heating systems. If you're unfamiliar with how they work, think of a refrigerator "in reverse."[16] While refrigerators keep a space cool by moving warm air out, heat pumps do the opposite and move heat inside.

This means they help keep your home comfortable regardless of the season.

HEATING FUNCTIONALITY



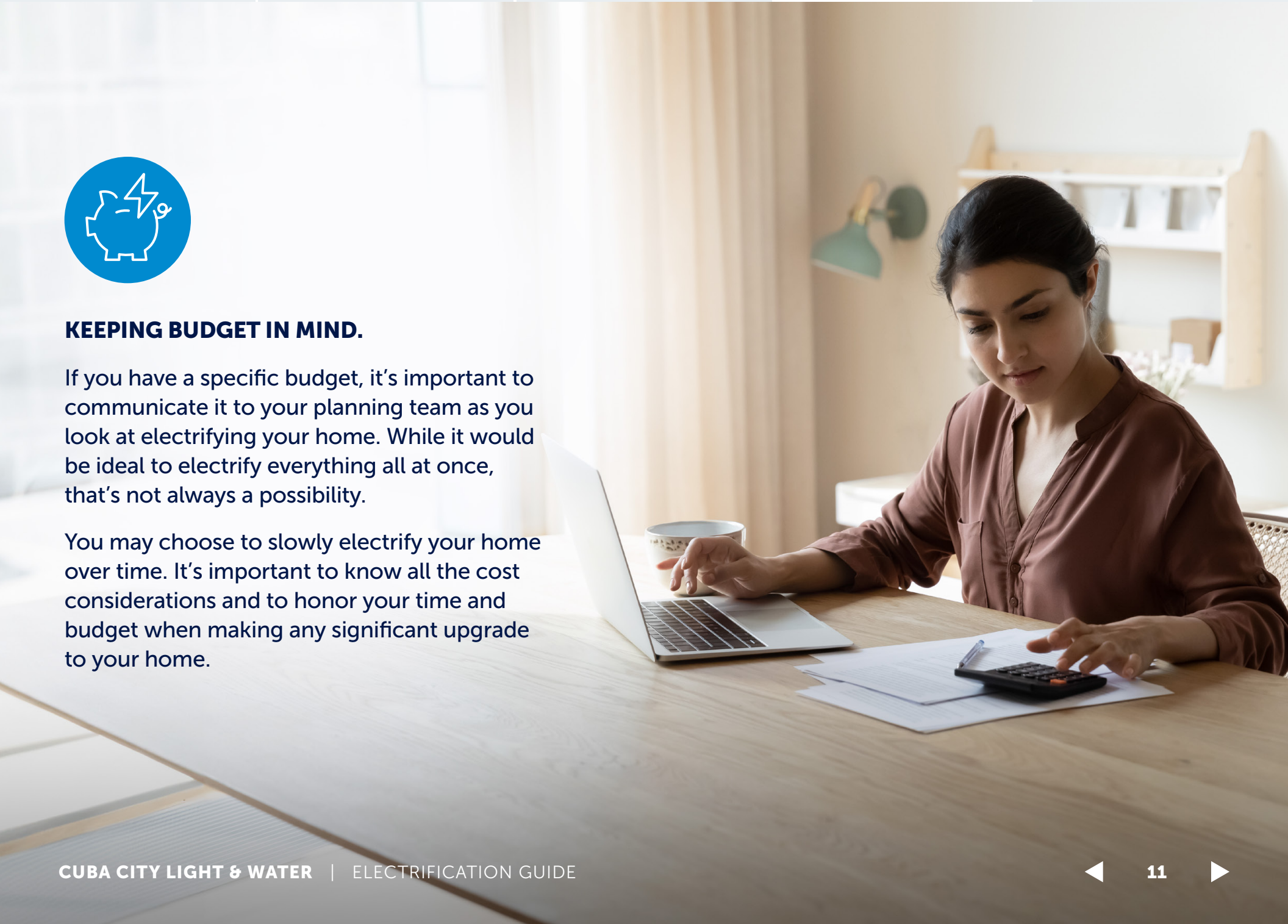
Because heat is transferred, rather than generated as it would with a conventional furnace, heat pumps are able to warm your home more efficiently.[17] Yes, even in cold, Midwestern winters![18] In some circumstances, you can replace both your furnace and your air conditioner, streamlining all your heating and cooling needs to one energy efficient appliance.

Heat pumps have been known to work in temperatures as low as negative 13°F.[19] This means that while it might be advisable to have a backup heating method for those extreme winter days, you're able to efficiently heat and cool your home with the same device most of the year.

KEEPING BUDGET IN MIND.

If you have a specific budget, it's important to communicate it to your planning team as you look at electrifying your home. While it would be ideal to electrify everything all at once, that's not always a possibility.

You may choose to slowly electrify your home over time. It's important to know all the cost considerations and to honor your time and budget when making any significant upgrade to your home.



Cost considerations

While the easiest way to plan for full electrification is at the beginning of construction, making smaller changes to your current home can still provide electrification benefits.

Knowing which upgrades will give you the best bang for your buck is a great way to prioritize and draft your project plan.

An energy audit will give you a more detailed picture of your home's energy use, but in general, homes tend to use most of their energy on heating and cooling.[20] For Midwest homeowners, it will not be surprising to know that over a third of energy is spent on heating.[21]

HOME ENERGY COSTS IN THE MIDWEST

- **35%** Space heating
- **12%** Water heating
- **10%** Air Conditioning
- **39%** Other

Graphic data source: eia.gov[21]

Additional considerations

- Your home's current fuel type.
- Whether you have fixed charges with your current fuel type, such as a monthly fee for gas line connection.
- Your home's energy rate and possible alternative rate options available to you.
- Maintenance of your newly installed electric appliances and systems, including regular inspections and repairs.
- Incentives, grants, and rebates from federal, statewide or local programs.
- Income qualified resources, such as energy assistance.
- Any need for electrical service upgrades, panel upgrades or dedicated circuits and associated permits.
- Not all electrification efforts are equal. Electric (resistance) heaters for buildings are inefficient compared to other options and can lead to increased expenses. Heat pumps are a more efficient alternative.

Your electrification contractor or utility representative should be able to make recommendations on where to get more information. In the next section, we'll outline some resources for finding electrification project financing and where you can get more in-depth information.

Additional resources

FINANCIAL RESOURCES

Securing financing for your home electrification is an integral part of making sure your project is manageable for your personal budget. Some financial options available to Wisconsin residents are:

- **FOCUS ON ENERGY**
  Energy efficiency incentives and support for Wisconsinites
  - Focus on Energy's Guide to Heat Pump Systems
  - Focus on Energy's IRA (Inflation Reduction Act) Home Energy Rebates Guide
- **PACE Wisconsin (Multifamily)**
  Financing for Energy Efficiency Projects
- **IRS**
  Federal Tax Credits (Home Energy Tax Credits)
- **Wisconsin Home Energy Plus (Income-qualified)**
  Energy Assistance and Weatherization Benefits
- **Energy Assessments**
  (WI) Focus on Energy
  For Michigan and Iowa customers, contact us for more information.

LEARNING RESOURCES

If you'd like to take an even deeper dive into learning about home electrification, or still have questions about your electrification options, there are great learning resources available online. We recommend the following:

ENERGY STAR | Focus on Energy | Rewiring America

SUPPORT RESOURCES

If you're not sure where to begin, or simply would like to talk to someone before deciding if home electrification is right for you, we recommend reaching out to the following support staff:

- Focus on Energy support staff
  800-762-7077
- **Your local utility's customer service department**
  Contact us at **608-825-1757**
- **Qualified contractors familiar with energy efficiency projects**
  Focus on Energy registered trade allies
- **Qualified energy advisors familiar with energy efficiency projects**
  Energy Advisor Map from Focus on Energy

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Thank you

Thank you for taking the time to learn more about electrification. As your locally owned utility, we're committed to being your trusted partner as you navigate decisions for your family and energy future.

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