

CLIMATE CHANGE AND YOUR HOME

BC is already experiencing the impacts of climate change: extreme heat, more powerful storms and increased frequency and severity of wildfires. To prevent even more serious climate impacts, we need to address climate change through **mitigation** and **adaptation**. We can do this by reducing the energy use in our homes.

- + 12% of BC emissions are from buildings¹
- + 75–100 years—average lifespan of a house
- + 15–25 years—how often many major building systems require updates
- + 2050—the target date for net zero emissions set by the Province of British Columbia

Bottom Line: The decisions you make about your home today will determine its carbon emissions, and impact on our planet, for decades to come.



The Good News

All buildings can be low-carbon buildings by choosing the most energy efficient option every time you need to upgrade a building system. These are called deep energy retrofits and they offer some pretty great added benefits:

- + improved comfort
- + improved air quality
- + reduced street noise
- + option to add summer cooling
- + improved resale value
- + more resilience to extreme weather
- + compliance with upcoming home benchmarking and energy standards

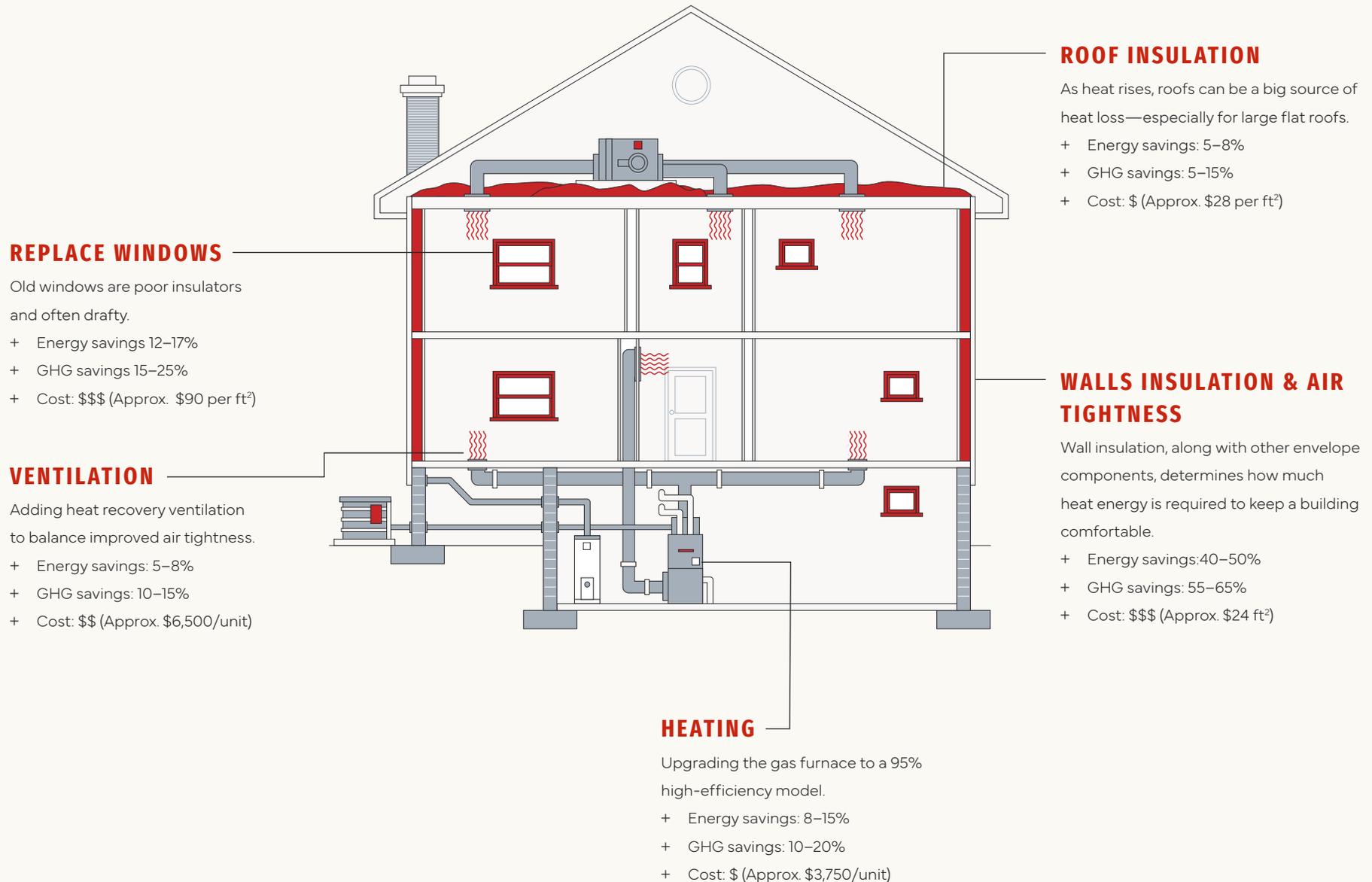


What is a Deep Energy Retrofit?

A deep energy retrofit is a bundle of related projects that reduce energy consumption in your home by at least 50%. They usually start with the building envelope (windows, walls, roof) and can include **air tightness**, ventilation, heating, hot water and electrical measures.

Seventy-five per cent of energy use at home is for heating and hot water, so it's tempting to think that's the first place to start. Your building envelope is actually what determines how much heat is needed to keep your home comfortable. The example below shows the impact of upgrading different components in an average 2,500 ft² home in Vancouver. The values are in the range of anticipated costs and energy savings.

DEEP ENERGY RETROFIT OPPORTUNITIES AT HOME



The Bigger Picture

The different components of a building are interdependent; if you make changes to one system it can influence how another performs. This is an important consideration for deep energy retrofits. There are a few general rules you can follow:

1. Envelope first

The efficiency of your envelope will determine how much heating you need.

2. Windows and walls

If you're replacing windows, add blown-in insulation at the same time because you'll have easy access to the wall cavity. That means lower costs and less time spent in renovation mode overall.

3. Air tightness and ventilation

If you get rid of air leaks, you need to balance that with mechanical ventilation or you may cause air quality and moisture issues.

4. Heating systems go last

Leave your heating systems for last so that they can be sized for the lower heating demand from all the other low-carbon projects you completed first.

5. Keep the big picture in mind

Consider all the projects together to make sure you don't have to repeat work. For example: if you have to upgrade your electrical panel or service line, keep in mind future plans for EV charging.



Building as a System

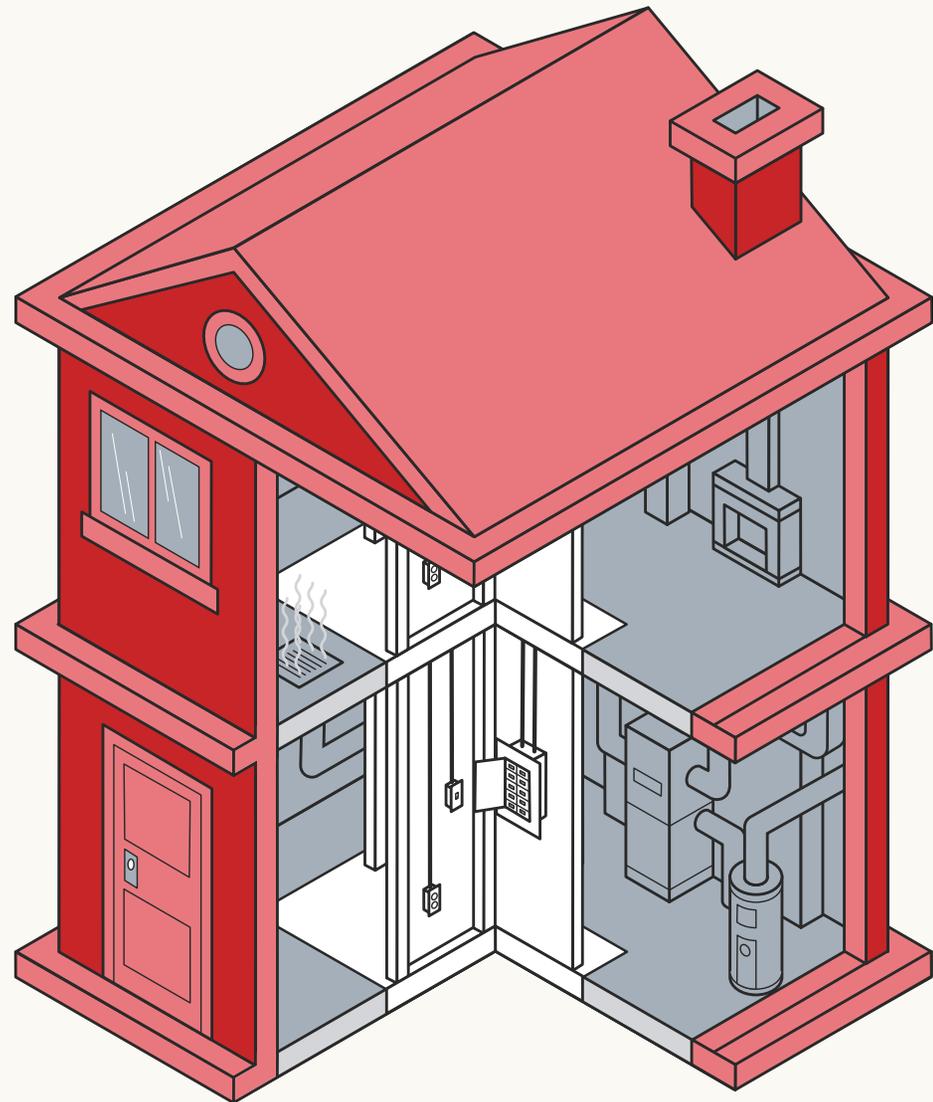
Buildings as a system are a way to think about how the different components of a building are really nested one within the other and changes to one building system will impact other buildings systems.

The Envelope includes walls, windows, roof and doors. It separates the inside from the outside—like skin. How well insulated and air-tight your envelope is will determine how hard other building systems need to work to keep you comfortable.

Mechanical Systems include heating, ventilation and air conditioning (HVAC). They act like the heart and lungs of a home, circulating heat, hot water and air to maintain a balance of temperature, humidity, and air quality.

Electrical Systems including controls are the buildings nervous system, distributing energy and turning things on and off as needed. This includes lighting, efficient appliances, and building automation.

The environment around the building and it's shape influence building systems too. For example, whether you want to consider solar shading, how much insulation is appropriate for your climate, or what kind of materials are needed to keep wind and rain out.



Is My Home a Good Candidate?

Every home has the potential to be low-carbon and climate-ready, but the best time to look into a deep energy retrofit is when you need to replace or repair what's already there. So, what are some of the signs your home might be ready for a deep energy retrofit?

- Built before 1995 (25+ years old)
- No major work done since it was built, plus two or more of the following issues:
 - High monthly **energy bill**
 - Condensation in the windows, mould or water damage on window sills
 - Indoor air feels heavy or smells stale sometimes
 - Some spaces get too cold
 - Some spaces get too hot
 - Need to replace your gas furnace
 - Need to replace your gas hot water tank

How Do I Get Started?

First You Need a Plan.

Don't wait for a problem to occur—the best time to map out a deep energy retrofit is before you need to do the work. The path you take will depend on the urgency of the replacements and your financial readiness. Incentives available through government and utility programs can help to offset the cost.

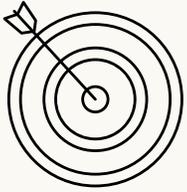
You Don't Have to Do It All at Once

Upgrading all your building systems at once saves time and money. If that isn't practical, you can take a phased approach, just keep the building as a system approach top of mind. Work with your building advisor or contractor to map the steps to a deep energy retrofit by bundling projects together and putting them in a logical order to save costs and reduce unintended consequences.

The Best Part

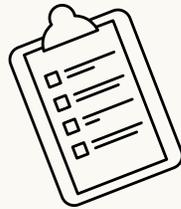
This is an opportunity to upgrade your home and add features. Reducing noise and improving thermal comfort, better air quality, adding cooling or upgrading electrical infrastructure to prepare for EV charging. You might even add in that revenue suite while you're at it. Not to mention your home will last longer, be better prepared for extreme weather, increase in value AND it's better for the planet!

STEPS TO A DEEP ENERGY RETROFIT



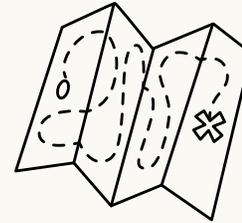
1. DEFINE THE PROBLEM

What issues do you want to resolve?



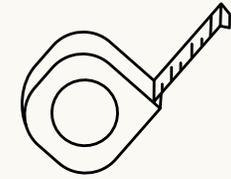
2. COMPLETE A HOME EVALUATION

Set a baseline of home performance and find opportunities by completing an EnerGuide Home Evaluation with a Registered Energy Advisor.



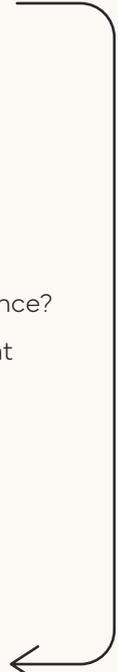
3. MAP YOUR PATH

What are the key components of your home that need to be updated and in what order? A home performance contractor can help.



4. CREATE A PLAN

Can we do everything at once? Or do we want to look at a phased approach?



5. INVESTIGATE OPTIONS

Bring in specialists to assess the feasibility of the projects and make recommendations. This should include an estimate and specifics of the measures.



6. MAKE THE BUSINESS CASE

Work with your Energy Advisor or General Contractor to clarify the business case for the next phase in your plan. This should include available rebates.



7. HIRE THE CONTRACTOR

Get it done!



8. EVALUATE THE IMPROVEMENT

Work with your Energy Advisor to get an updated EnerGuide Home Evaluation and assess how much your home has improved.



Lead the Way and Join our Pilot Program

Low-carbon homes are the future. The province is investing in policies and programs to support the transition for all. Natural gas is part of the solution, and a sustainable option.

FortisBC is looking for homes to participate in a pilot program to uncover “how low can you go” with natural gas as a primary heating source.

Participants selected for the Deep Energy Retrofit pilot program will receive funding and full support from FortisBC and a team of experts to work through all the stages of a comprehensive deep energy retrofit of their home.

Sound interesting? Keep reading!

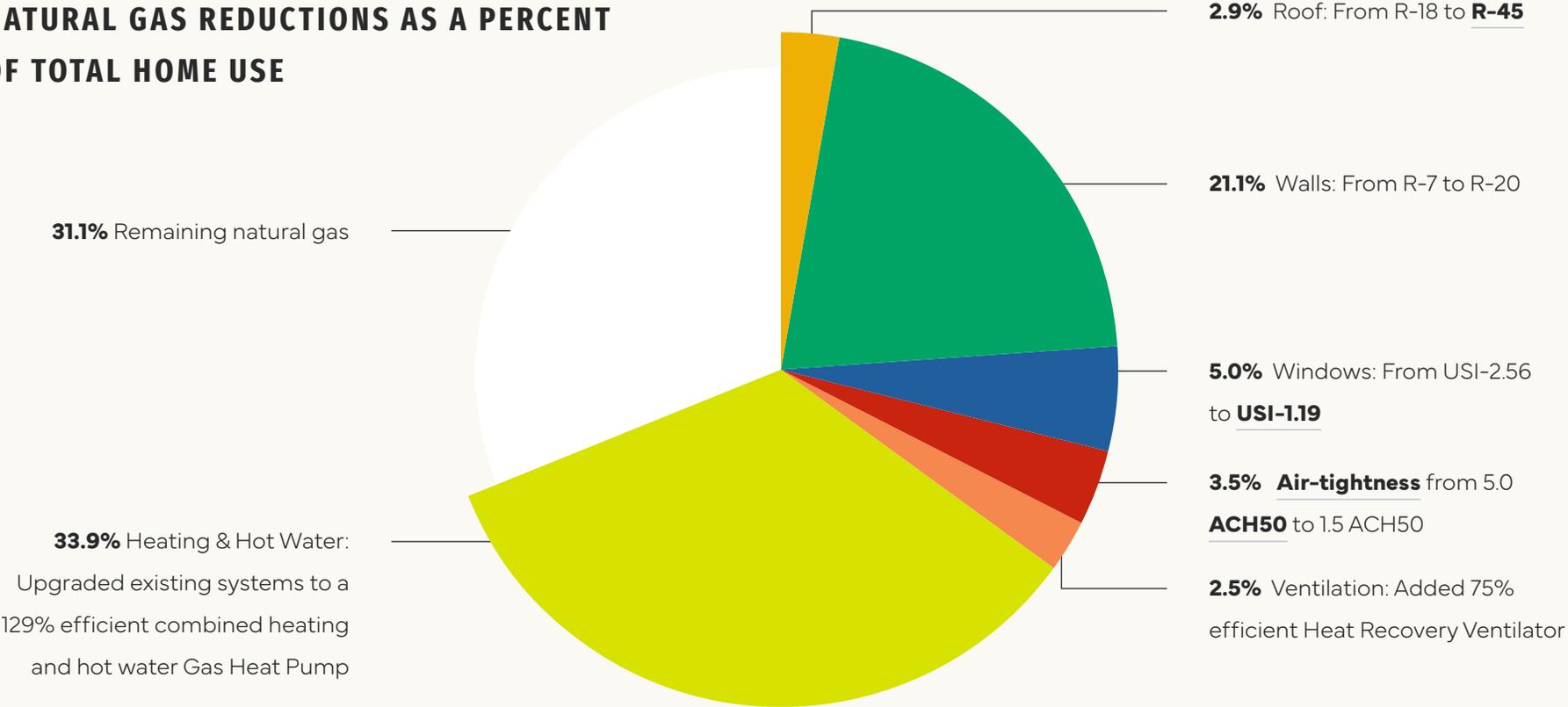
How Low Can You Go?

Low-carbon opportunities vary by home, depending on the design, construction, and how well it's been maintained. Here's a modelled example of what's possible based on a Vancouver Special home built between 1965 and 1985.

- + 69% natural gas savings overall
- + 67% GHG reduction
- + 35% Energy cost savings

It All Adds Up

NATURAL GAS REDUCTIONS AS A PERCENT OF TOTAL HOME USE



How Much Will it Cost?

Every home and every bundle of projects are different. Plus, these projects save money on utility bills for as long as they are in your home.

To help you decide if a deep energy renewal is right for you, consider this example. This 2,500 ft² home has 20 existing single-pane windows that have to be replaced. They are comparing their options.

Incremental Costs

If you have to replace a building system anyway, the real-cost of the more energy efficient option is the extra money you need to pay compared to a simple replacement minus available incentives. This is the incremental (extra) cost you pay for all the added comfort and climate benefits.

Added Benefits

Some of the benefits of deep energy retrofits aren't easily translated into a dollar value. Consider the health and climate benefits, less stress from emergency repairs, higher property value, and the peace of mind knowing your home is future-ready.

What's the Business Case?

Every home and every bundle of projects are different, so costs and savings can vary widely. When you're planning the steps of a deep energy retrofit, here are a few big ideas to help you think about making the investment. Plus, these projects save money on utility bills for as long as they are in your home.

Capital and Incremental Costs

If you have to replace something in your home, the real-cost of the more energy efficient option is the extra money you need to pay compared to a simple replacement minus rebates. This is the incremental (extra) cost you pay for all the added comfort and climate benefits.

Savings and Simple Payback

Deep energy retrofit projects lead to lower energy use and utility savings that add up over time. To calculate simple payback, divide incremental costs by annual energy savings to see how many years until savings will pay for the extra investment.

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CALCULATING ENERGY SAVINGS

An EnerGuide Home Evaluation will include a breakdown of where your home uses energy and document how efficient your building systems are.

You can use the information in your pre-upgrade evaluation to help estimate energy savings.

Your registered energy advisor or installation contractor may be able to assist with ballpark savings estimates as well.

A post-upgrade evaluation will confirm how much your home's efficiency has improved.

You Mentioned Rebates?

The Provincial and Federal governments, as well as BC Utilities are all offering rebate programs to help homeowners start the move towards low-carbon and climate-ready homes. Check out [Better Homes BC](#) or talk with an Energy Coach to learn about that program. Rebates offered through BC Utilities are included in this online resource, or you can visit FortisBC's [Residential Rebates](#) directly. The [Canada Greener Homes Grant](#) also offers incentives which can be claimed on top of provincial rebates.

How About Finding Contractors?

Better Homes BC also has resources to help you find a [Home Energy Advisor](#) to complete an [EnerGuide Home Evaluation](#) to help you get started. Talk with your Energy Advisor to see if they also offer Home Performance Contractor services, to help you map the path to a low-carbon home.

Fortis BC's [Find a Contractor](#) and BC Hydro's [Program Registered Contractors](#) resources are a great first step to finding qualified contractors to install your low-carbon projects. You can even sign up for [Fortis BC's Let's Go](#) program to be notified when the scaled-down public deep energy retrofit program launches.

Renewable Natural Gas

Once our buildings are efficient, the next step is switching to renewable natural gas (RNG). What is it? When organic waste like compost, cow manure or wood waste decomposes, it releases biogas into the atmosphere. That raw biogas can be captured and purified to create RNG. RNG works just like conventional natural gas, except it is captured from the existing waste stream.

FortisBC is committed to bringing renewable natural gas to the BC market as part of their [30BY30](#) target to reduce their customers GHG emissions by 30 per cent by 2030 in support of the [CleanBC Roadmap to 2030](#) to achieve the province's goal of net zero 2050. Visit [FortisBC](#) to learn more.



LEAD THE WAY AND JOIN OUR PILOT PROGRAM

FortisBC is looking for homeowners in BC to participate in a pilot program to uncover “how low can you go” towards net zero emissions with natural gas as a primary heating source. Participants selected for the Deep Energy Retrofit pilot program will receive funding and full support from FortisBC and a team of experts to work through a comprehensive deep energy retrofit of their home.

WHAT DO YOU GET?

- + A detailed analysis of your home and possible energy saving measures
- + Support to select the most efficient technologies that will work for your home
- + Engineering support to complete a feasibility study for any major building system redesigns
- + Full financial support to implement recommended measures

- + Full support to find and hire the right contractors for the job
- + Option to include aesthetic or other upgrades as part of the project—you only pay the extra cost
- + Ongoing support through all stages of the retrofit from FortisBC and their team of experts
- + Likely that you’ll have new windows, upgraded insulation, new heating and hot water system and upgraded ventilation.
- + A completely renewed future-ready, low-carbon home with low utility bills

Excited? We are too! Apply for the FortisBC Deep Energy Retrofit Pilot Program for Single Family Homes.