



2022 Progress Report

ENERGY TRANSITION PILLARS



MESSAGE FROM THE CHAIR

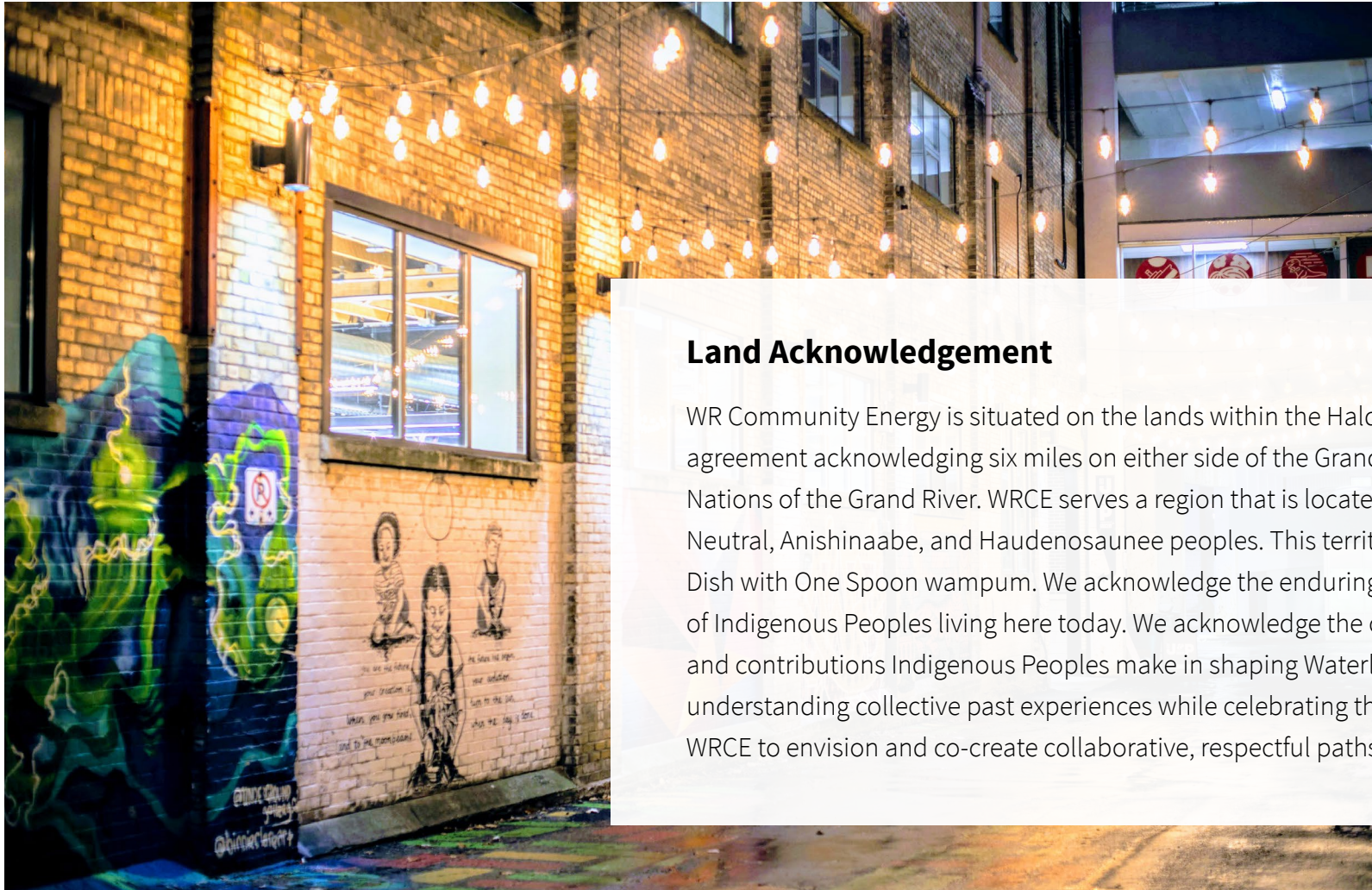
As we finish our first four-year term, WR Community Energy continues to showcase the power of a cross-sectoral vision for our energy transition. We have made significant progress on community-scale projects like Green Development Standards, a Community Energy Efficiency Financing program, heat mapping, district energy, and research into energy from waste opportunities. We focus on projects that work best when worked on together.

Our second four-year term will focus on how to be intentional with our actions. We offer a vision of three overlapping Energy Transition Pillars: Policy, Markets, and Infrastructure. If leaders from these pillars collaborate, our community will be able to take advantage of the many energy transition opportunities.

As you read this report, we invite our community leaders to consider where their work fits within these three pillars and reflect on how to integrate with other projects. As always, please reach out if there are opportunities to work together.

Rene Gatien

Co-CEO, Enova Power Corp. and
Chair, WR Community Energy Governance Committee



Land Acknowledgement

WR Community Energy is situated on the lands within the Haldimand Treaty of 1784, a formally ratified agreement acknowledging six miles on either side of the Grand River as treaty territory belonging to Six Nations of the Grand River. WRCE serves a region that is located within the traditional territories of the Neutral, Anishinaabe, and Haudenosaunee peoples. This territory is within the lands protected by the Dish with One Spoon wampum. We acknowledge the enduring presence, knowledges and philosophies of Indigenous Peoples living here today. We acknowledge the continuing accomplishments and contributions Indigenous Peoples make in shaping Waterloo Region. We are committed to understanding collective past experiences while celebrating the inclusion of Indigenous voices within WRCE to envision and co-create collaborative, respectful paths together in mutuality and reciprocity.

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Note: For this report, 'Waterloo Region' or 'region' describes the geographic area encompassing three cities and four townships, and 'Region of Waterloo' refers specifically to the municipal upper-tier government.



Photo: City of Waterloo

ABOUT WR COMMUNITY ENERGY

WR Community Energy (WRCE) is a strategic collaboration between the Region of Waterloo, its urban municipalities (the Cities of Cambridge, Kitchener, and Waterloo), and local energy companies (GrandBridge Energy, Enbridge, Kitchener Utilities, and Enova Power Corp). It was created to lead the implementation of [Waterloo Region's Community Energy Investment Strategy](#) (CEIS) and to steward the energy transition in our community.

Our projects focus on three priority areas: Buildings, Energy Generation, and Energy Literacy. We ensure these priority areas are integrated into the three Energy Transition Pillars: Policy, Market solutions, and Infrastructure development.



The Energy Transition

We are in another energy transition: one that requires us to develop and use clean, local, and equitable energy.

Historically, energy transitions have occurred at the crossroads of major economic and societal shifts. Most recently, coal and transportable, dense energy sources led to industrialization. Electrification led to cities, and gasoline led to suburbanization. Our current energy transition requires us to develop clean, local, and equitable energy. We must now ask, how can we leverage this energy transition to build the community we want?

The pandemic has given us an idea of what this shift could look like. If we work more from home, can we expect residential energy use to increase and commercial energy use to decrease? If so, how can we plan for infrastructure change with climate change and equity in mind? If we commute less, does that increase the uptake of electric vehicles?

These are fundamental questions to our energy transition, and answers will not come from one sector or industry. In the face of a climate crisis, and with clean, local, and equitable energy in mind, we must work together on intentional actions. Waterloo Region, like other leading communities, must move forward with three pillars of action we've named the "Energy Transition Pillars"

Energy Transition Pillars

MARKETS

Private developers need support to incorporate clean and local energy into their projects.

POLICY

All municipal and utility policies need to include clean, local, and equitable energy considerations

INFRASTRUCTURE

Provide the infrastructure to move renewable energy sources to its end users.

Team and Structure

Our Governance Committee, Working Groups, and staff, with support from our external partners/ collaborators, advance projects aimed at continually improving Waterloo Region's economic competitiveness and quality of life.



Services

WRCE is a collaboration that takes us beyond the limits of the services that individual partners can provide.

WRCE has a unique perspective of looking at energy across the community agnostic to energy sources, infrastructure, borders, and technologies. This enables us to take early leadership on complex projects until natural leaders emerge. Specifically, we offer the following services to our partners:

1 Energy Trends Exploration

To explore the viability of energy investments in the Waterloo Region, we engage and fund qualified consultants to conduct research that's both promising and relevant. Currently, we are looking at waste-to-energy opportunities and mapping heat sources.

2 Municipal Support

We support municipalities in integrating energy considerations into municipal processes including planning review, policy development, corporate assets, and infrastructure. Currently, we are working on various topics related to Green Development Standards (GDS).

3 Development Support

Leveraging our knowledge of infrastructure, policies, and energy sources and sinks, we provide strategic advice at the early stages of property development. Currently, our work is about matching local energy sources with relevant policies and technologies. We host “Lunch and Learn” modules for planning, architectural, and development firms, and we're in the planning stages of “energy innovation concierge”, which aims to remove early barriers for new community energy technologies.

4 Utility Support

We promote a broader understanding of energy infrastructure and explore energy opportunities for utilities by offering strategic advice, grant-writing, connections with the community, and involving utility companies in community projects. Currently, we are exploring a thermal grid to connect heat sources with sinks.

5 Community Support

We connect with community and professional groups to develop partnerships, deliver presentations, and provide strategic advice on energy topics. Our current message is about how Waterloo Region has been shaped by past energy transitions and how we can take advantage of the one we are currently going through.

YEAR IN REVIEW

Following a successful first term (2019-2022), in which we established key collaborations and partnerships and launched some independent projects, the start of WRCE's second term marks deeper collaborative progress on integrated and systematic projects related to the three energy transition pillars outlined in this report.

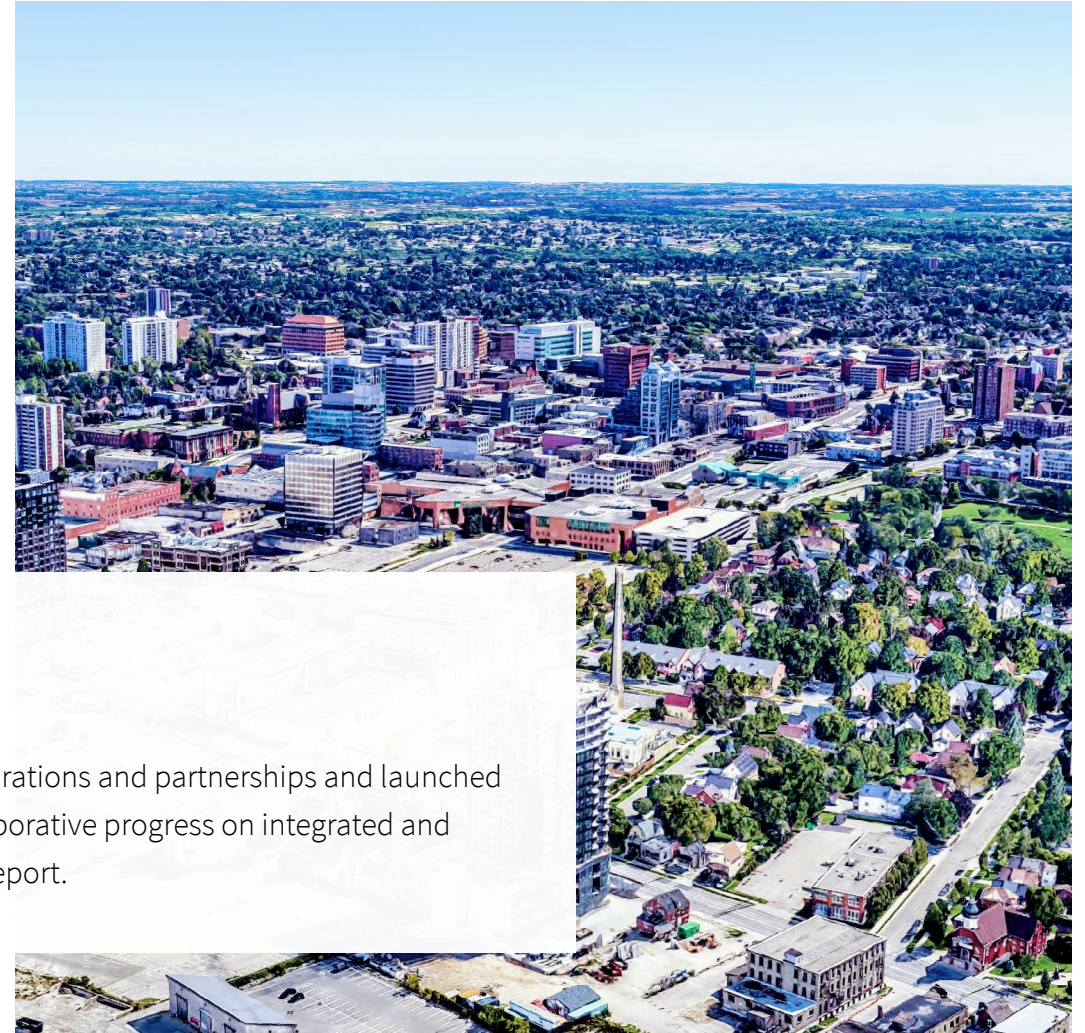


Photo: City of Kitchener

Buildings

Buildings significantly contribute to Waterloo Region's Greenhouse Gas emissions. WRCE empowers municipalities, industries, and communities to improve the energy performance of existing and future buildings.

Green Development Standards

GDS are a critical policy tool for municipalities to ensure our new buildings are future-ready and meet our community needs. Leading municipalities like Toronto, Ottawa, and Whitby use GDS to set mandatory tiers to ensure new buildings reach net-zero emissions steadily and predictably. Other municipalities set voluntary targets.

In 2021, WRCE's Land-Use Working Group worked collaboratively on a region-wide GDS in two phases. Phase 1, completed in fall 2022, focused on educating our broader municipal and utility partners on GDS. The objective was to understand and measure our level of ambition for these standards. The planning for phase 2 is underway as we evolve our vision to align with provincial policy directives.

[Introduction to GDS](#)

[The Record Article – Waterloo Region group leading effort to require greener buildings](#)



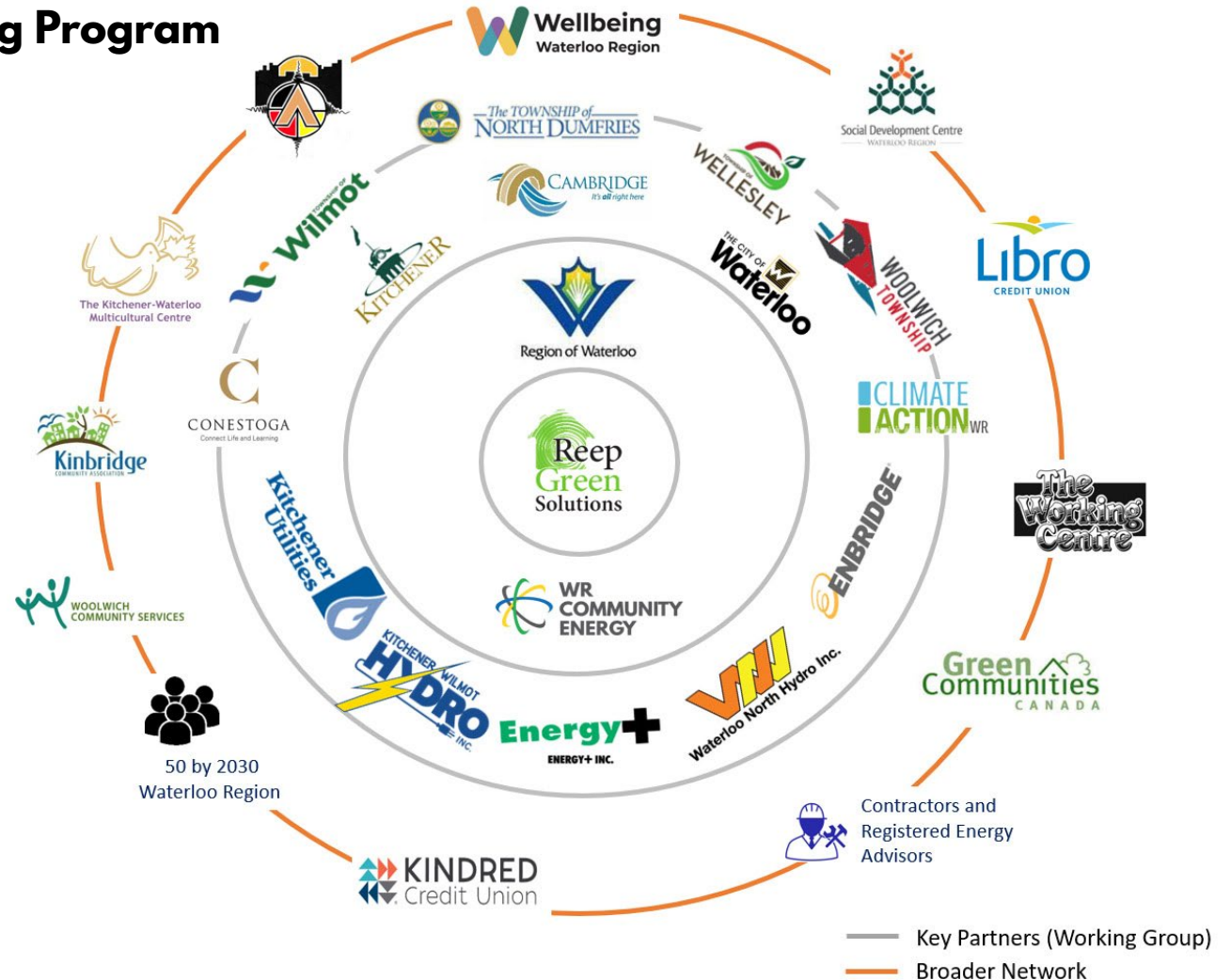
Photo: City of Waterloo

Community Energy Efficiency Financing Program

Homes produce almost a fifth of Waterloo Region's Greenhouse Gas (GHG) emissions. Getting new-builds to net zero is one thing, but retrofitting existing homes is one of the biggest challenges to decarbonizing our community. To meet our goals, we will need to deeply retrofit 200,000 homes in the next 27 years.

Stemming from the Priority Projects Working Group, Reep Green Solutions (in partnership with the Region of Waterloo and WRCE) secured funding from the Federation of Canadian Municipalities to design a regional Home Energy Retrofit Financing Program which includes a one-window service, a home energy coach, and an [equity-centred community engagement strategy](#).

RetrofitWR, the resulting program, is a four-year residential energy retrofit program financed through On-Bill Repayment via Local Distribution Companies GrandBridge Energy and Enova Power Corp. with a Loan Loss Reserve.



Energy Generation

We can reduce emissions from energy sources, lead in energy investment, and keep energy dollars in our community by generating renewable energy locally.

Thermal Economy

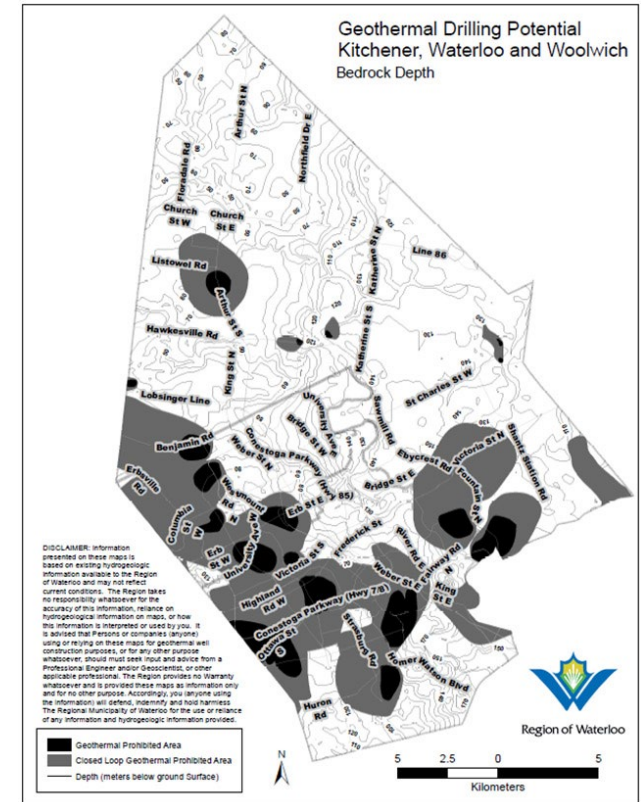
To localize and decarbonize our energy supply, we need to take advantage of the abundance of wasted thermal energy in our community. By mapping this heat, we can match heat sources and sinks. Putting a price on heat can create a network effect to finance new infrastructure. This is an ambitious project that requires coordination between industry, policy, and utility leaders.

Industrial Waste Heat Recovery

In term 1, WRCE produced two of three “heat” maps that show Waterloo Region’s underused heat sources. Progressing part three of the exercise, WRCE (along with Grand River Energy) convened a successful meeting in October with industrial, utility, and policy leaders from the community to measure the broad interest of capturing industrial waste heat. Industry supported the project and WRCE is now in a data collection phase. Ultimately, this will lead to an industrial waste-heat map with the intention to apply for expected industrial-scale clean-energy grants.

Regional Biomass Hub

Waterloo Region is particularly well-suited to manage a waste-to-energy system. Waste is managed effectively by the Region of Waterloo on the supply side, has city-owned natural gas on the distribution side, and everything in between. Our community has set-up a taskforce consisting of the Region of Waterloo, City of Kitchener, Kitchener Utilities, Grand River Energy, and WRCE to progress these efforts.



Energy Literacy

A community that understands energy can develop energy-first plans, enable local energy use through infrastructure improvements, and create a positive economic environment for innovation.

Waterloo Region Energy Systems Map

The shift towards clean, local, and equitable energy can be seen by looking at the increased use of Electric Vehicles (EVs), solar panels, and other renewable energy sources. But it can also be seen by the changing business models of our local utility companies.

Since WRCE launched in 2018, four of our five utility partners have changed names and/or merged. Energy+ joined with Brantford Power to become GrandBridge Energy. Kitchener-Wilmot Hydro and Waterloo North Hydro merged to become Enova Power Corp., and Union Gas is now Enbridge.

All this change makes it harder to understand the already complicated energy landscape. Here is the updated map of our utilities' service areas.

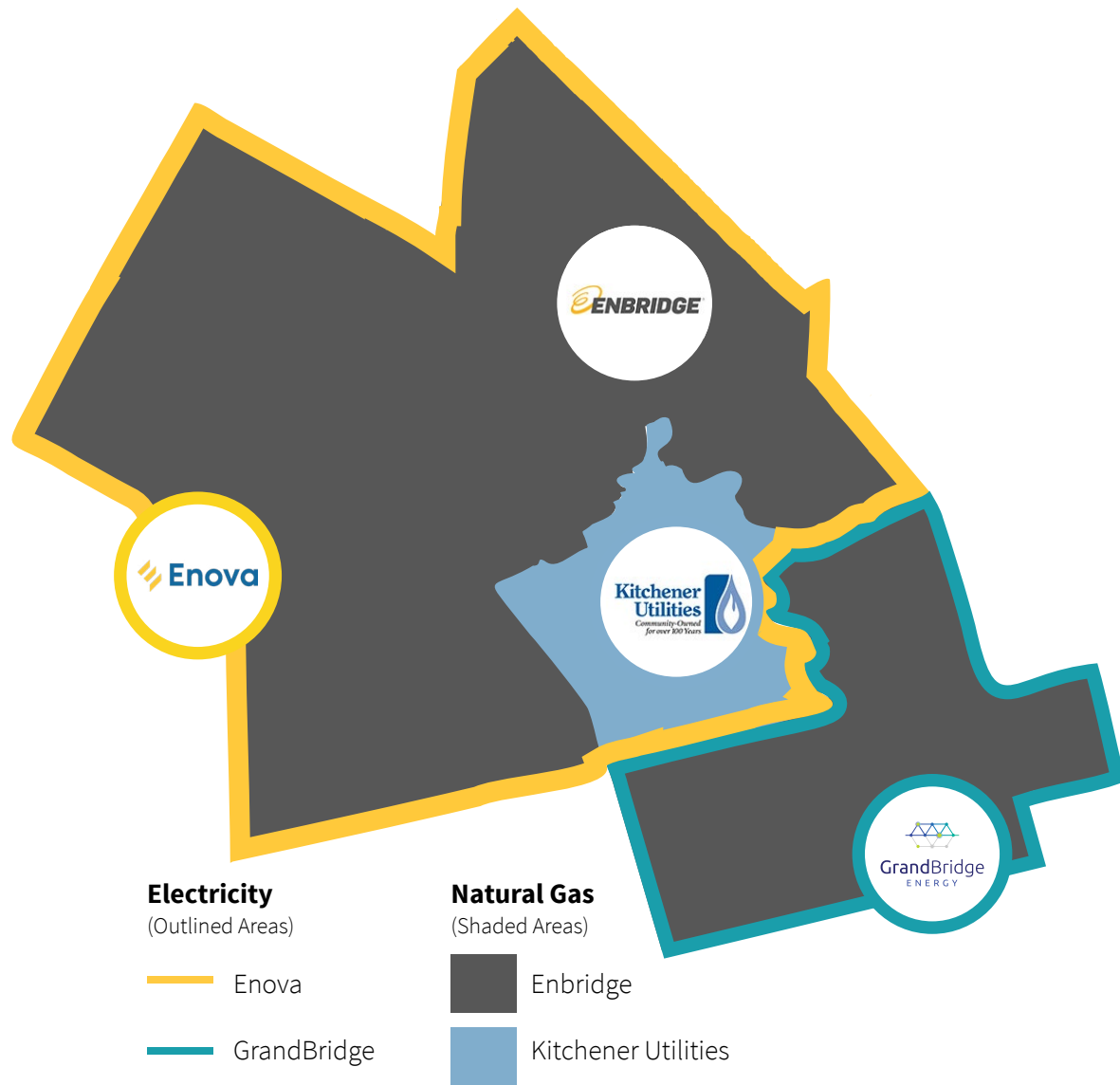




Photo: Uptown Waterloo BIA

Connecting with the Community

Throughout 2022, WRCE shared its message of collaboration for energy transition with the community at events and projects including:

- **[Southern Ontario Growth Conference](#)** – February 2022
Presenting Green Development Standards to local climate activists.
- **[Clean Economy Cluster Map](#)** – March 2022
WRCE, Sustainable Waterloo Region, the Region of Waterloo, and Waterloo EDC hosted a launch event for a newly developed Clean Economy Cluster Map.
- **[AMO Municipal Energy Symposium](#)** – April 2022
WRCE partners held a panel discussion about the viability of municipal, utility, and community collaboration.
- **[Masterclass: Energy Efficiency Retrofits for Multi-Family Buildings](#)** – May 2022
WRCE led a two-part workshop series to prepare multi-family housing board members, owners/operators, and property managers for energy efficiency retrofit projects.
- **Energy Transition Green Walk** – October 2022
WRCE Co-lead a walking tour of the story of the energy transition through downtown Kitchener developments and landmarks.
- **Lunch and Learns** – for planning, architectural, and development firms.

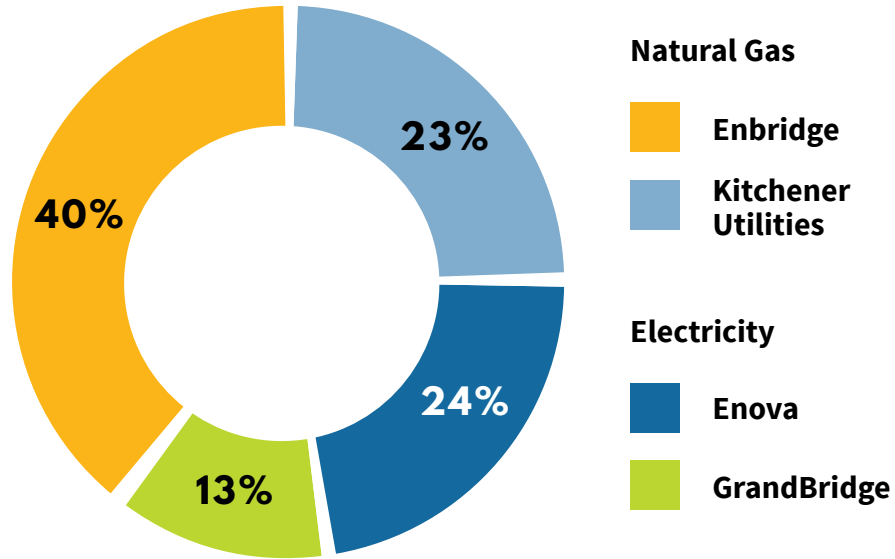


ENERGY USE IN WATERLOO REGION

WRCE was created by our Municipalities and Utilities, in part, to scale up our underused community energy resources. But what are our current energy resources and how are they being used? The following few graphics help us understand our energy landscape.

Energy Distributed by Utility (In Joules)

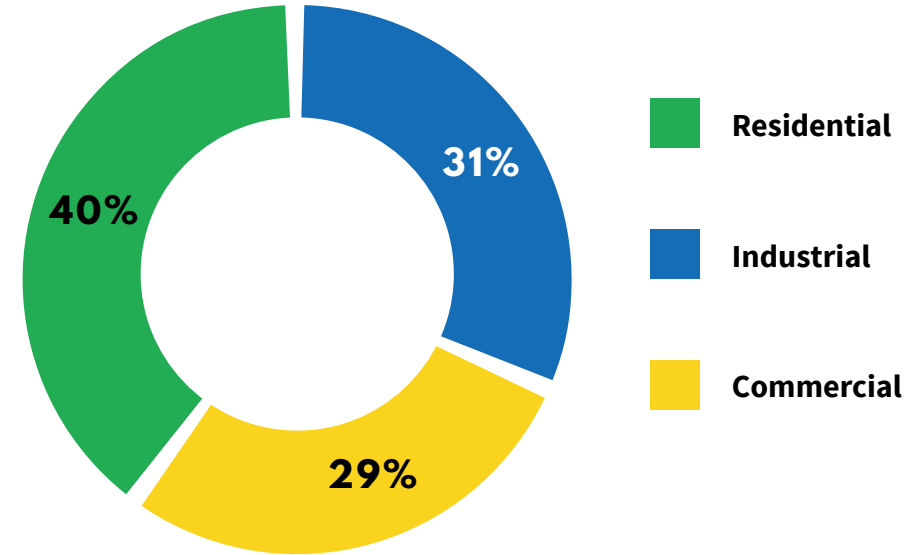
In Waterloo region, our four utilities provide energy in two forms: Natural Gas (Kitchener Utilities and Enbridge) and Electricity (Enova Power Corp. and GrandBridge Energy).



Natural Gas is the major energy source for our community accounting for nearly two thirds of our distributed utility-level energy.

Energy Use by Sector

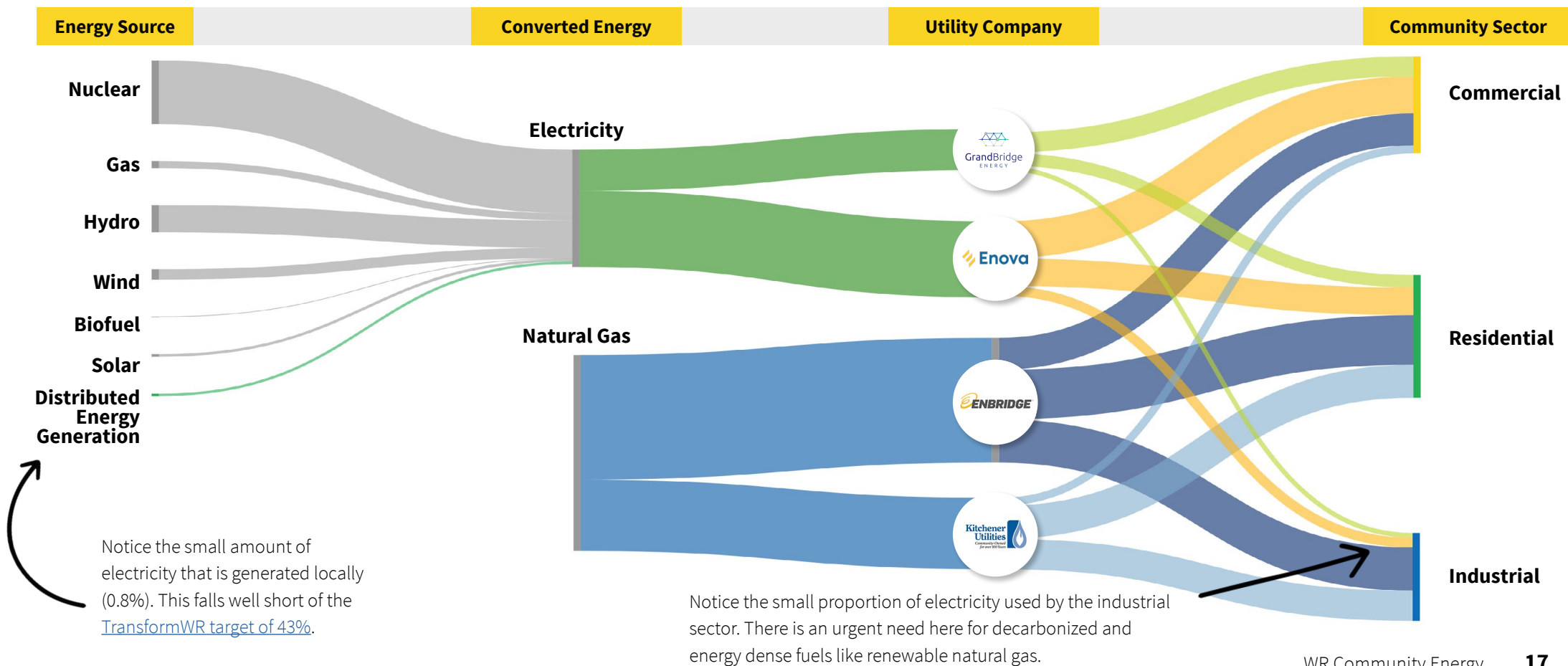
Our utilities categorize end-users by three sectors: residential, commercial, and industrial.



In our community, there is roughly an even-split of energy use between all three sectors.

How Energy is Generated and Consumed in Waterloo Region

This Sankey Diagram combines the two previous graphs to show how energy flows from generation to consumption in our community.



Energy Transition Pillars

Understanding how energy is generated, distributed, and used within our community is a crucial step. To make the most of the energy transition, we must be intentional and collaborative with our actions.

We must ensure our policy, markets, and infrastructure develop and ultimately integrate together.

Policy

Energy technologies and opportunities move faster than our policies are adapting. Waterloo Region made significant progress this year by completing phase 1 and beginning phase 2 of a regional GDS. If successful, this will embed energy considerations into municipal planning processes. But this is just the start. Every municipal and utility policy and master plan needs to similarly integrate energy considerations. We recommend continuing this work with planning policies (including local official plans), waste management, economic development, and sanitary master planning. This can be facilitated through area municipalities' Corporate Climate Action Plans.

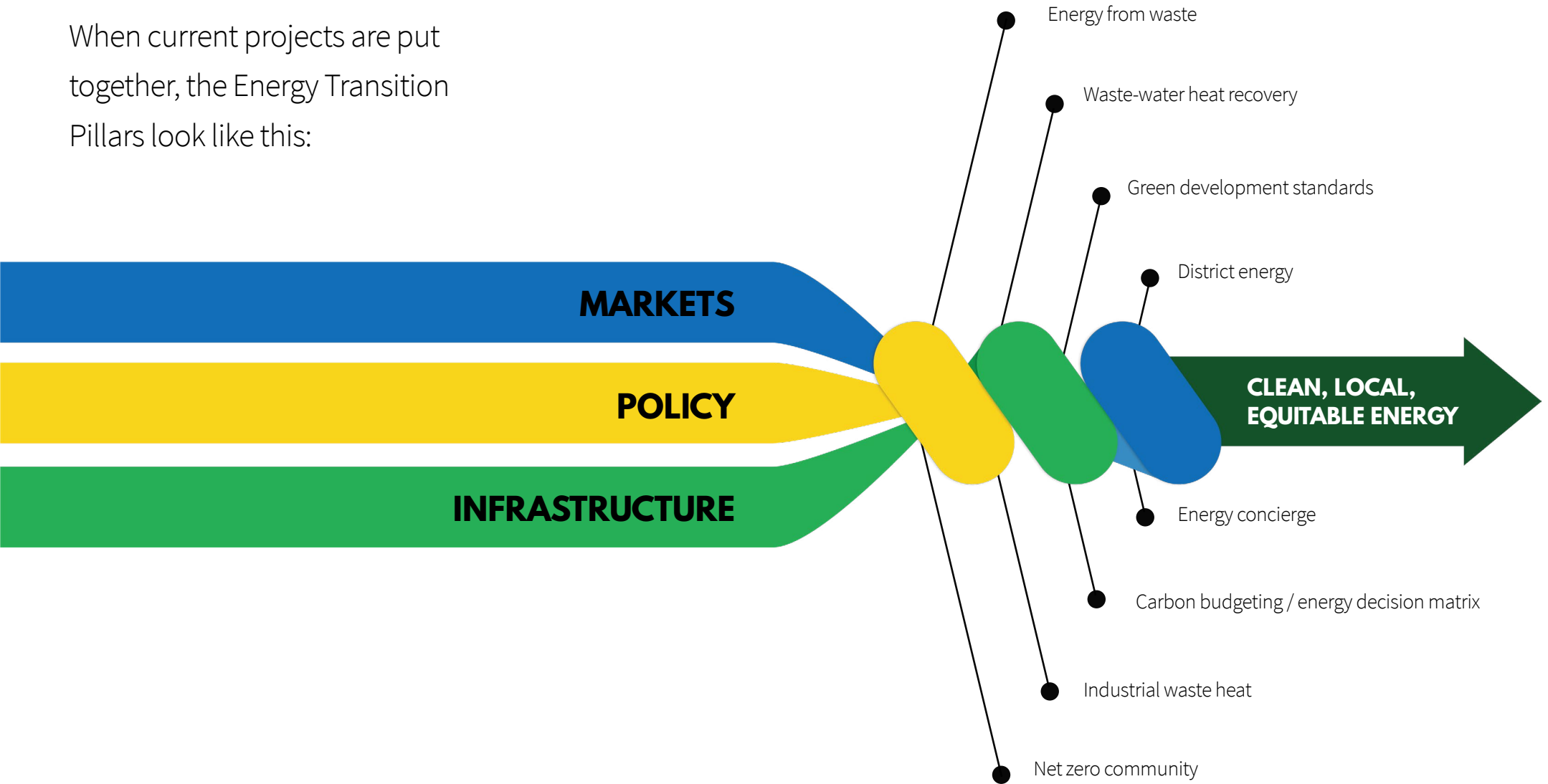
Markets

Private energy consumption will make, or break, our energy transition. The most sustainable communities in Canada are developed when private partnerships, local governments, and utilities work together. Zibi in Ottawa and Toronto Western Hospital are two leading examples. This year a new strategic direction from Grand River Energy (GRE) – a municipally owned energy developer focused on co-ownership – will help our community develop these projects.

Infrastructure

Our Region likely has more than enough technology and energy to produce all the clean energy we need, yet, in 2020 we produced less than 1% of our energy. Part of the reason for this low number is regulatory, but the other part of the problem is physical. We simply don't have the infrastructure needed to move our clean local energy across the community. WRCE is continuing efforts by mapping energy sources and sinks and exploring ways to finance a thermal grid along with other infrastructure objectives.

When current projects are put together, the Energy Transition Pillars look like this:



BE PART OF WHAT'S NEXT

Our region has an opportunity to be leaders in community energy initiatives, but because we're still measuring our ambitions, we have yet to develop our road map of action. If we are going to reach our targets, we will need leadership from our municipalities, utilities, energy partners, politicians, and developers.

Our current energy transition asks us to develop clean, local, and equitable energy. We don't know how the energy transition will change our community, but we do know that to build the community we want, we need to work together. Let's make sure we understand how our work affects, and is affected by, the Energy Transition Pillars.

Get in touch. Email us:

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Photo: City of Cambridge




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