

Kitchener Utilities

Clean Energy Transition Strategy



Guiding principles:

Phase 1 discussion paper

for the Kitchener Utilities Clean Energy Transition Strategy project

November 2023

Acknowledgements

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Table of Contents

Acknowledgements.....	2
Executive summary	5
Part 1: Project context	7
1.1: Project background.....	7
1.1.2: Project initiation.....	7
1.1.3: Project scope and related work at the City of Kitchener.....	7
1.1.4: Project Phases.....	8
1.2: High-level environmental scan	9
1.2.1: Evolving climate science and commitments.....	9
1.2.2: Evolving policy and regulatory environment.....	9
1.2.3: Evolving industry environment and consumer options.....	10
1.2.4: Evolving energy reliability context.....	11
1.2.5: Evolving costs and cost trends.....	11
1.2.6: Evolving City of Kitchener policy context.....	12
1.3 Key Characteristics of Kitchener Utilities.....	12
1.3.1: Current energy services	12
1.3.2: Structure and oversight	13
1.3.3: Values and commitments	13
1.3.4: Strengths and opportunities	14
1.3.5: Vulnerabilities and risks.....	14
Part 2: What we heard in Phase 1	16
2.1: Engagement activities and audiences.....	16
2.2: Key insights from Phase 1 engagement.....	17
2.2.1: Cost and affordability.....	17
2.2.2: Reliability.....	17
2.2.3: Change	18
2.2.4: Kitchener Utilities as a business.....	18
2.2.5: Information, education, and awareness.....	18
2.2.6: Trust and responsibility.....	19
Part 3: Guiding principles for future phases	20



- Guiding Principle 1: Make responsible, accountable, and financially rewarding business decisions 20
 - Objective 1.1: Follow sound business practices 20
 - Objective 1.2: Take action quickly to manage business risk and maximize opportunity 20
 - Objective 1.3: Assess value holistically to find our best contribution 21
- Guiding Principle 2: Serve customers as an affordable and reliable partner in the energy transition .. 21
 - Objective 2.1: Pursue affordable, reliable, and predictable energy services for our customers 21
 - Objective 2.2: Empower customers with choice, and with trustworthy, accessible information..... 22
 - Objective 2.3: Bring people along as things change 22
- Guiding Principle 3: Contribute to a thriving community 22
 - Objective 3.1: Collaborate with partners..... 23
 - Objective 3.2: Do our part to address climate change 23
 - Objective 3.3: Use clear metrics and align them with community-scale goals 23
- Guiding Principle 4: Plan for multiple energy futures with flexibility and focus 24
 - Objective 4.1: Rely on safe bet technologies and prepare for long shot technologies 24
 - Objective 4.2: Prepare for a broad range of net-zero carbon futures..... 25
 - Objective 4.3: Iterate, experiment, and learn 25
- Part 4: Next steps.....26**
 - 4.1: Expected components of Phase 2 26
 - 4.2: What you’ll see next 26

Executive summary

In this discussion paper, we summarize what we have learned this year, through Phase 1 of the Kitchener Utilities Clean Energy Transition Strategy project. The global clean energy transition brings both risks and opportunities for the City of Kitchener as an energy provider, as well as for customers and community members. This strategy will guide us as we evolve our energy business to continue to be financially successful and provide valued services throughout the energy transition.

The first phase of the strategy project in 2023 has focused on engagement and building relationships and understanding around values, goals, and scope of the strategy. In this phase, we have worked to invite people into a problem-solving conversation with us. During Phase 2, in 2024, we will assess possible approaches and make recommendations, and Phase 3 will be focused on accelerating implementation planning in 2025.

This project focuses on the City of Kitchener's community energy businesses, which are housed in the Gas and Water Division of the Infrastructure Services Department. The discussion paper is therefore written from the perspective of Kitchener Utilities as the community energy service provider at the City, but it considers the broad context of work happening across City divisions and departments related to the community's energy transition.

In Part 1 of this discussion paper, we summarize the project context, provide a high-level environmental scan, and describe key characteristics of Kitchener Utilities that inform this work.

In Part 2 of the paper, we briefly describe what we have heard through public engagement during Phase 1 of the project, which is outlined in more detail in a companion document, called [What we heard: Phase 1 engagement summary for the Kitchener Utilities Clean Energy Transition Strategy](#). We have had in-depth conversations with customers, community members, stakeholders, Kitchener committees, staff, and Council, through a variety of formats. In those conversations, we have heard diverse insights about the importance of cost and energy reliability, as well as the role that information, education, and awareness plays in supporting customers through the changes that are underway. We also heard important insights about Kitchener Utilities as a business, and about the trust that customers and the community have in us. This adds to our responsibility to our community to live up to that trust.

These diverse conversations have led us to develop a set of guiding principles to form the basis of future phases of work on this project, and these are the focus of Part 3 of the discussion paper. We have four guiding principles, and each of those has a stated intention, as well as three more specific objectives. These principles are discussed in depth in the paper, but a summary table is provided here for ease of reference:



Table 1: Guiding principles

As we evolve our energy business to continue to be financially successful and provide valued services throughout the energy transition, we will...		
Guiding Principles	Our intention	Objectives
1: Make responsible, accountable, and financially rewarding business decisions	“We will work to responsibly position our community-owned business for success as things change around us.”	1.1: Follow sound business practices 1.2: Take action quickly to manage risk and maximize opportunity 1.3: Assess value holistically to find our best contribution
2: Serve customers as an affordable and reliable partner in the energy transition	“We will work to empower customers and community members as their trusted partner in the energy transition.”	2.1: Pursue affordable, reliable, and predictable energy services 2.2: Empower customers with choice and with trustworthy, accessible information 2.3: Bring people along as things change
3: Contribute to a thriving community	“We will work to make our community even stronger.”	3.1: Collaborate with partners 3.2: Do our part to address climate change 3.3: Use clear metrics and align them with community-scale goals
4. Plan for multiple energy futures with flexibility and focus	“We will work to prioritize solutions that can adapt to and provide value in all energy futures.”	4.1: Rely on safe bet technologies and prepare for long shot technologies 4.2: Prepare for a broad range of net-zero carbon futures 4.3: Iterate, experiment, and learn

As noted in Part 4, preliminary project planning for Phase 2 of the project is underway, and in that phase, our work will include identifying and assessing new potential business offerings or program expansions. It will also include assessing our existing businesses under a broad range of potential future conditions and scenarios, including the range of potential impacts on our assets, rates, and revenues. We are expecting to bring recommendations arising from Phase 2 of the project to Council in late 2024 or early 2025.

Part 1: Project context

1.1: Project background

Kitchener Utilities' natural gas delivery business needs to evolve, to respond to ongoing changes in the global, national, provincial, and local energy context as the clean energy transition continues, and to align with the City's and the community's climate change commitments.

These changes bring risks and opportunities for Kitchener Utilities, its customers, and community members. As a community-owned energy utility, KU is a unique asset to the community's energy transition.

This project aims to develop a multi-decade business strategy that will guide us as we evolve our energy business to continue to be financially successful and provide valued services throughout the energy transition. The strategy will align with the City's and the community's 2021 commitment to TransformWR, including achieving transformational change to accomplish the energy transition through work that will also build an equitable, prosperous, resilient low-carbon community.

1.1.2: Project initiation

Through active participation in the ClimateActionWR collaborative of municipalities and non-profit organizations, in 2021, Kitchener committed to reduce community greenhouse gas emissions 50 per cent by 2030, and 80 per cent by 2050. As a partner in the ClimateActionWR initiative, the City has also endorsed the TransformWR community climate action strategy, which is centred on Six Transformative Changes that must be made by 2050 to address local GHG emissions while building an equitable, prosperous, resilient low-carbon community through the transition off fossil fuels.

A key transformative change that will impact Kitchener Utilities significantly in TransformWR is that, "by 2050, businesses and homes no longer use fossil fuels for space heating and cooling, and water heating."

As part of its endorsement of TransformWR, Council devoted staffing resources toward developing a strategy to guide Kitchener Utilities through the energy transition.

This work also aligns with the City's and Kitchener Utilities' participation in WR Community Energy, a unique collaborative partnership between the three cities, the Region of Waterloo, and local electric and natural gas utilities to support the community's energy transition.

1.1.3: Project scope and related work at the City of Kitchener

This project focuses on preparing Kitchener Utilities, as the City's energy utility, for the clean energy transition.

Other key City divisions and departments are conducting critical work related to the energy transition that is proceeding in parallel. This includes:

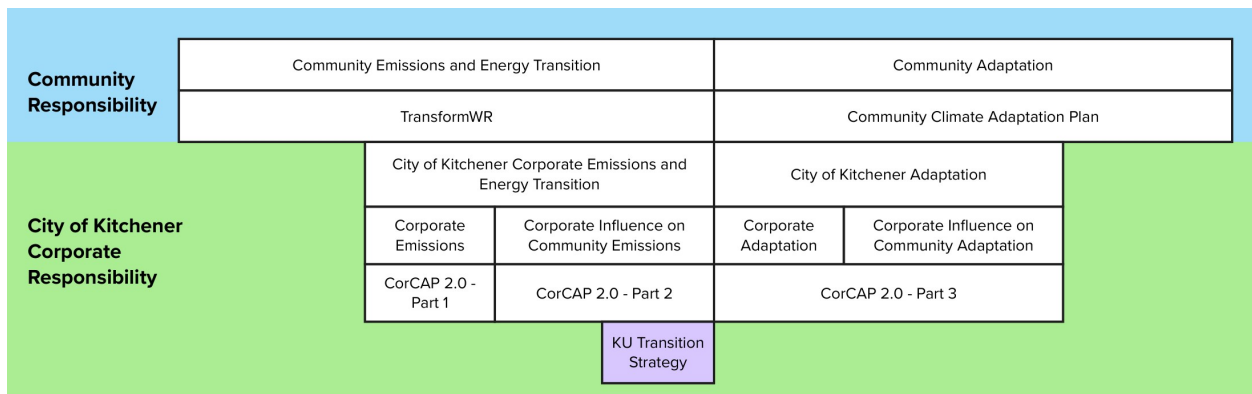


Table 2: Related work

Project	Lead Dept.	Lead Division	Status
Corporate Climate Action Plan (CorCAP) 2.0	DSD	Office of the GM of Development Services/Sustainability Office	Part 1 in Progress
Downtown Kitchener District Energy Feasibility Study	DSD	Planning	In Progress
Green Development Standards	DSD	Planning (with WR Community Energy partnership)	In Progress
Dividend/Reserve Fund Reviews	FIN	Office of the CFO	Upcoming
Various external partnership initiatives	Various	WR Community Energy; ClimateActionWR; Enova	Various

Since this strategy project is part of the City’s influence over community emissions, the KU Transition Strategy is also a subset of the work that will be addressed in Part 2 of CorCAP 2.0, and part of the City’s work to implement the TransformWR strategy, as outlined in Figure 1.

Figure 1: Community and corporate responsibility for climate change mitigation and adaptation



1.1.4: Project Phases

The first phase of the strategy project, in 2023, has been focused on engagement and building relationships and understanding around values, goals, and scope of the strategy. This part of the process has been about inviting everyone into a problem-solving conversation with us.

Phase 1 of the project is intended to inform Phase 2 of the project in 2024, which will assess possible business options and recommend an integrated approach.



Project Phase	Timing	Focus on...	Achieved through...
Phase 1	2023	building relationships and understanding around values, goals, and scope of the strategy	relational engagement with Council, staff, stakeholders, community members, and customers
Phase 2	2024	determining the way forward together	detailed, collaborative option assessment and recommendation of an approach
Phase 3	2025	building consensus on the implementation plan to 2030	developing a phased long-term implementation strategy to 2050 and a detailed first phase implementation plan to 2030

While developing a robust strategy to guide Kitchener Utilities for the next 30 years will take some time, during the strategy development project, staff continue to advance work that maintains KU’s options and act on time-sensitive items.

1.2: High-level environmental scan

The discussions we have had in Phase 1 of the project have taken place as the context around us continues to evolve. Decisions that we make as a community-owned business are heavily informed by a variety of factors, particularly those related to industry conditions and government policies. We review a number of the ways that these contexts are evolving, as this provides critical context for the decisions that will be under consideration in future phases of this project.

1.2.1: Evolving climate science and commitments

Cross-sectoral agreement on energy transition objectives has grown as the City’s involvement and participation in corporate and community climate and energy transition work has progressed. There is broad global agreement on the need to achieve net-zero emissions, where we no longer add more and more GHGs to the atmosphere from human activities, by mid-century. Canada has also joined countries around the world that have committed to achieving net-zero carbon emissions by 2050, and to reduce emissions to 40-45% below 2005 levels by 2030.

1.2.2: Evolving policy and regulatory environment

In the context of federal and international commitments, as well as industry changes, climate- and emissions-related policies are likely to be a continuing and growing feature of the policy and regulatory landscape in the coming decades. Policies are expected to evolve over time, which highlights the need to be adaptable as the regulatory environment changes.

The federal carbon pricing pollution benchmark is arguably the most influential of current policies for Kitchener Utilities’ business, because it applies to our customers. Kitchener Utilities is required to collect the relevant amount through utility bills and transfer it to the federal government. Current carbon pricing is \$65 dollars per tonne of GHGs, and it is scheduled to rise by \$15 dollars per year, reaching \$170 dollars in 2030. We estimate that a typical residential customer using 2000 cubic metres of natural

gas per year will spend about \$248 dollars this year on federal carbon pricing. The federal government currently provides direct rebates on carbon pricing to individuals and families in Ontario, intended to offset the cost of the charges on fuels such as natural gas and gasoline, and to help support investment in clean energy options.

Polluter-pay approaches to emissions, such as the federal carbon charge, are generally considered [by the federal government](#) to be among the most efficient and therefore low-cost policy approaches to addressing GHG emissions. This is because the policies price the impacts of current environmental practices while incentivizing the use of alternatives. While other policy approaches are possible in different contexts or under future governments, the costs to natural gas customers from addressing GHG emissions under alternative policy regimes are unknown, and they may be higher than they are under the current pollution pricing system.

At the same time as pollution pricing policies have become a more significant factor in the energy sector, governments at various levels are increasingly investing in and funding the transition. Clean energy technology development has become more of a factor for various levels of government. Provincial policies and investments enabling the development of clean tech industries, such as EV battery manufacturing, have been increasing as well.

There have also been changes in other jurisdictions to the regulatory landscape of natural gas delivery businesses. Some jurisdictions in North America, including Montreal and New York State, are prohibiting new natural gas connections after specified dates. Other jurisdictions, such as the Province of Quebec and Nanaimo, BC, are prohibiting the installation of new fossil fuel-based heating equipment on announced timelines. While the number of jurisdictions with constraints on fossil fuel heating are growing, at this time there are no similar rules in place affecting the Kitchener Utilities' service territory.

1.2.3: Evolving industry environment and consumer options

Other utilities and major players in Ontario's energy systems are undertaking planning associated with changes in technology and efforts to achieve net-zero emissions. The Independent Electricity System Operator (IESO) is beginning planning for the simultaneous decarbonization and considerable expansion of the provincial electricity system. The Ontario branch of Enbridge Gas has recently identified pathways to a net-zero carbon future, emphasizing a diversified approach that relies on electrification tied with deployment of low- or zero-carbon gases, including renewable natural gas (RNG), hydrogen, and natural gas with carbon capture.

From a consumer standpoint, competitive electric options for space and water heating are becoming increasingly available, and this is a significant factor in the shifting business landscape for Kitchener Utilities. In particular, over the last number of years, there have been significant developments in heat pump technologies that are used for space and water heating. Heat pumps work on the same premise that refrigerators and freezers do, and they use electricity to move heat energy instead of generating directly. Recent [analyses](#) found that air source heat pumps, which run on electricity, are cost-competitive in most parts of the country for most residential buildings. Despite higher initial equipment and installation costs, the high efficiency that comes from moving heat with electricity instead of generating it means that, in many buildings, there are cost savings over the full lifecycle of the

equipment from installing a heat pump with electrical or natural gas back up heat instead of a standard furnace and air conditioner.

A number of Kitchener Utilities customers are beginning to install heat pumps, particularly in light of current federal [Greener Homes Grant](#) funding, which reduces up-front costs for homeowners. While some customers are disconnecting gas service to their homes, it is much more common to maintain natural gas service. Many heat pumps are being installed as part of hybrid systems, where heat pumps serve primarily as a more efficient replacement for an air conditioner. In these cases, the furnace system is maintained to provide heating below a particular set temperature, and the heat pump provides heating above that temperature.

Heat pump water heaters are also becoming more available, and provide options to electrify water heating with more efficiency than standard electric water heaters.

1.2.4: Evolving energy reliability context

The context in which our energy systems must provide reliable, stable services is changing as well, both with regards to service interruptions and supply chain exposure.

For all providers of energy services, it is a high priority to avoid interruptions to service, given the critical role that electricity and natural gas play in the community's comfort, productivity, and safety. System reliability is expected to be challenged by the increasing frequency of extreme weather events as a result of climate change, with the potential for disruptions from more ice storms affecting electric infrastructure, for example.

At the same time, both electricity and natural gas service are generally fairly reliable in Waterloo Region. Though natural gas experiences fewer interruptions than electricity, overall interruptions in supply are rare and short when they do occur, and while they affect convenience, their short duration means that they do not typically affect safety from heat or cold temperatures. Because natural gas infrastructure is underground, it is less vulnerable to damage and disruption from weather conditions.

While there are considerably more interruptions in electricity service than gas service, these two energy sources have different geographic risk profiles. Like other fossil fuels, natural gas is provided from outside of Ontario, and subject to national and sometimes international market pressures. These led, for example, to a spike in rates for Kitchener Utilities gas customers in 2022, since natural gas supplies were more expensive due to global forces. While electricity generation equipment is subject to potential global supply chain disruptions, such as were experienced at stages of the recent pandemic, increasing diversity of smaller scale options for locally generating and storing electricity, such as solar panels and battery storage, mean that there is growing potential for building increased resilience to global market forces.

1.2.5: Evolving costs and cost trends

Currently in Ontario, natural gas prices are lower than in many jurisdictions in Canada, and electricity prices are higher. These prices are, however, subject to change over time, depending on changing conditions. Recently, natural gas supply costs have fluctuated significantly due to continental and global supply chain factors, and natural gas prices are forecast to increase somewhat in the coming years in the

event that Liquefied Natural Gas (LNG) exports become more prominent, increasing North America's exposure to global gas market trends.

There are also more explicit price changes scheduled as part of the phase-in of federal carbon pollution pricing. Pollution pricing is planned to increase from 12.39 cents per cubic metre of natural gas today to 32.4 cents per cubic metre in 2030. This means that, while a residential customer expecting to use 2,000 cubic metres of natural gas per year would pay \$248 this year on pollution pricing, this number would increase to \$648 in 2030.

These changes mean that, while future gas costs continue to be uncertain, changing costs may be a significant factor for customers considering different energy sources for their space and water heating.

1.2.6: Evolving City of Kitchener policy context

In addition to the energy services it provides to the community through Kitchener Utilities, the City of Kitchener is also the largest shareholder in Enova, the electricity distribution utility serving Kitchener, Waterloo, Wellesley, Wilmot, and Woolwich, and has oversight roles through board representation and receives dividends as a shareholder.

As a division of the City of Kitchener, Kitchener Utilities also shares the City's broader goals for community wellbeing. The City's most recent strategic plan, approved this year, highlights five strategic goals for 2023-2026 and related work under each goal, specifically:

1. Building a connected city together (housing, transportation, active transportation, land use planning)
2. Cultivating a green city together (CorCAP 2.0, this strategy, district energy, tree canopy, parks strategies, parkland acquisition)
3. Creating an economically-thriving city together (business approvals, innovation campus, creative industries school, events and festivals strategy, entertainment venue management, Arts and Culture Master Plan)
4. Fostering a caring city together (Truth and Reconciliation, municipal newcomers strategy, engagement practices, community center operating model, recreation and leisure program review, Leisure Facilities Master Plan update, community grants review)
5. Stewarding a better city together (Digital Kitchener strategy, city-wide data strategy, employer identity/value proposition, psychologically safe workplace, procurement innovation)

1.3 Key Characteristics of Kitchener Utilities

1.3.1: Current energy services

Kitchener Utilities is a division of the City of Kitchener and is one of two gas utilities in Ontario that is municipally owned. For 120 years, Kitchener Utilities has delivered water and gas services to our community.

Our services include water delivery, natural gas delivery, stormwater and sewer services, and rental water heaters. While water, sewer, and stormwater operate on a cost recovery basis, profits from the natural gas delivery and rental water heater programs are reinvested into City of Kitchener services.

The natural gas provided through Kitchener Utilities is primarily used for two, very different, purposes. About 85% of the natural gas sold goes to residential and commercial customers, and is primarily used to produce low-temperature heat for space and domestic hot water heating. The remaining natural gas is used by industrial customers, who may use some natural gas for space and domestic water heating, but who often use significant amounts of natural gas to produce high-temperature heat as part of industrial processes.

Kitchener Utilities owns and operates approximately 1,118 kilometres of gas infrastructure, and delivers reliable fuel for space and water heating to approximately 73,300 homes, 4,140 businesses, and 385 industrial customers.

In 2002, our customers used 270,000,000 cubic metres (m³) of natural gas. Using this gas produced about half-a-million tonnes of greenhouse gas emissions. Natural gas use contributes about 1/3 of the annual community GHG emissions from within Kitchener.

1.3.2: Structure and oversight

Kitchener Utilities is one of two gas utilities in Ontario that is municipally owned. Natural gas delivery and rental water heaters provided by Kitchener Utilities operate within the Gas and Water Utilities division of the City, housed within the Infrastructure Services Department. 124 FTEs provide planning, operations, maintenance, and capital services to ensure the safe and reliable provision of gas and water services to customers.

As part of a City division, oversight and accountability to the public on utility decisions, such as setting annual natural gas rates, is provided by the City's elected Council. Other natural gas and electric utilities, operating as separate business entities, do not have this form of oversight, and they are instead regulated through the Ontario Energy Board through a different administrative process.

The profits provided by the natural gas delivery and rental water heater programs contribute revenues to the annual operating and capital budgets. For 2023, for example, approximately \$17.7 million in revenue from the gas and water heater rental businesses was used to fund tax-based operating programs and capital programs. These contributions to City finances reduce reliance on property taxes to fund City services.

Kitchener Utilities operates with the support of staff from across the City, including diverse business units such as Finance, Fleet, and Corporate Communications.

1.3.3: Values and commitments

Kitchener Utilities' core principles from 1903 remain the same: to deliver reliable, safe services at a fair price to meet customers' needs.

Our longstanding formal vision statement has been to "anticipate and adapt to political and technological change to enhance the quality of life for our customers and our community." The mission statement has been that "Kitchener Utilities is operated by a highly skilled and experienced team who provide a continuous and safe supply of water and gas services that exceed the expectations of our home and business customers."

As these statements were developed many years ago, and in light of the changes made during a 2018/2019 review of the City's utilities structures, work began a few years ago to begin updating the vision and mission statement. While this work is not yet complete, draft text developed through that process identified a revised approach, centered on the role that energy and water services play in the quality of life of the community.

Specifically, the draft vision identified was that "Our community's quality of life is enhanced by a locally-owned, sustainable, trusted provider of energy and water services." The draft mission was to "Provide safe, reliable energy and water services at stable, affordable rates; consistently exceeding customer expectations while helping the community achieve environmental and economic sustainability."

1.3.4: Strengths and opportunities

Kitchener Utilities' greatest asset is our skilled staff dedicated to customer service, who are the foundation of the strong relationships that we have built with customers and the community. With our location inside the City, Kitchener Utilities is in a unique position to build on its strong foundation and enable energy opportunities that are ideal for multi-solving, which could contribute to the City's work to strengthen the community in various ways, as outlined in the recent Strategic Plan highlighted above.

Through recent participation in WR Community Energy, an innovative collaboration between municipalities and electric and natural gas utilities in Waterloo Region, both the City of Kitchener and Kitchener Utilities have built strong relationships with local partners working to advance community energy goals.

Kitchener Utilities has a [long history of energy innovation through change](#), and has served people in Kitchener for more than a century through considerable changes in energy systems. When the Town of Berlin purchased in the Berlin Gas Company in 1903, it had just over 500 customers, and generated its gas from coal. The gas was used for street lighting, and the company generated electricity with it to sell, in addition to providing flammable gas directly to customers. Over the next century, the utility oversaw its customers' transition to more affordable hydro-electric power, and the transition from its original coal gas production to more reliable carburetted water gas production, and eventually to providing more efficient natural gas.

The energy transition brings significant opportunity for new business offerings, services, and revenue streams for energy utilities. Kitchener Utilities is in a strong position to provide leadership in local efforts to advance the energy transition while building an even stronger Kitchener. Potential business opportunities for Kitchener Utilities that provide new services could add considerable value for the community. We could play a significant role in supporting customers and community members with transitioning their energy use in the future, in order to achieve their climate goals while future-proofing their energy use.

1.3.5: Vulnerabilities and risks

Natural gas distribution utilities are recognizing a variety of business risks associated with the clean energy transition. As the energy transition progresses, it is expected that more customers will select higher more efficient and increasingly available decarbonized options, such as electric heat pumps, to

meet their low-temperature space heating and water heating needs. Because most of Kitchener Utilities' customers are using natural gas for low-temperature needs, Kitchener Utilities and other gas distributors could face significantly lower revenues and increasing operating and capital costs from a smaller customer base. Since the costs of natural gas delivery are paid by current natural gas customers, fewer customers could mean higher distribution costs per customer, which along with rising carbon costs could affect affordability, and also influence customer fuel switching decisions.

All of the different ways that net-zero emissions could be achieved over the next few decades include a significant decrease in the amount of conventional natural gas used within building space and water heating applications. Low-carbon gaseous fuels, such as hydrogen and renewable natural gas, are expected to play an important role in different energy futures, particularly to meet high-temperature heat needs in industrial settings. There are significant limitations on the availability of these fuels, however, and so they are not expected to replace current levels of natural gas use. This means that natural gas, and likely gaseous fuels in general, are expected to play a very different role in a net-zero future than they play today.

For high-temperature uses, industrial customers will continue to need reliable means of sourcing high-temperature heat. This will require different solutions than those used for low-temperature heat, and is likely to include a continuing need for low-carbon gaseous fuels such as renewable natural gas and low-carbon hydrogen. Meeting these evolving industrial energy needs while addressing future changes in residential and commercial gas usage is a significant consideration for natural gas utilities.

Part 2: What we heard in Phase 1

In this section, we briefly describe what we have heard through public engagement during Phase 1 of the project. For an in-depth assessment of engagement results, please see [What we heard: Phase 1 engagement summary for the Kitchener Utilities Clean Energy Transition Strategy project](#).

2.1: Engagement activities and audiences

The engagement we conducted in Phase 1 has included conversations with staff, stakeholders, Council, customers, and members of the public. In particular, engagement was comprised of:

- Customers and members of the public
 - Engage Kitchener online survey (August 24 to October 1 – 256 responses)
 - Demographically representative recruited in-person workshops (September)
 - Self-selected in-person workshop (September)
 - Self-selected virtual workshop (September)
- Stakeholders
 - In-depth stakeholder workshop (June)
- Kitchener committee meetings
 - Climate Change and Environment Advisory Committee (June)
 - Economic Development Advisory Committee (June)
 - Homebuilders Liaison Committee (July)
 - Equity and Anti-Racism Advisory Committee (September)
- Council
 - Council report (May)
 - Meetings with councillors (July to September)
- Staff
 - Team project introduction presentations (April to May)
 - Meeting with union representatives (April)
 - Managers meeting (July)
 - Managers and supervisors meeting (August)
 - Team meeting discussions with Kitchener Utilities leadership (General Manager and Director – September and October)
 - Staff meeting of representatives from each area (September)
 - Staff drop-in sessions (September)

An [Engage Kitchener page](#) was created to serve as the central online presence for the project. A project page on the City's internal KHub platform was created for staff.

As part of the engagement, three key resources were developed to help build the conversation. These resources were made available on the Engage Kitchener page, and were used as supporting resources in various engagement workshops and meetings. They are:

- A PDF resource on [Preparing for a Net-Zero Future](#), explaining the project context
- An infographic-style timeline of Kitchener Utilities' [120 Years of Energy Innovation](#)

- An infographic-style resource highlighting key features of [Possible Pathways to Clean Energy in our Community](#)

2.2: Key insights from Phase 1 engagement

Throughout our engagement, we heard a range of diverse insights focused on six main themes: [1] cost and affordability; [2] reliability; [3] change; [4] Kitchener Utilities as a business; [5] information, education, and awareness; and [6] trust and responsibility.

2.2.1: Cost and affordability

The most common concern expressed, from both community members and staff, was that that changing where the community gets its energy from will cost a lot, and that customers will bear the brunt of those costs. There was significant concern for the dire financial situations many community members are facing due to current economic conditions. There was also concern expressed, particularly in stakeholder groups, that the status quo could also be a challenge for affordability, particularly due to policy and regulation, and changing industry conditions.

There were also equity concerns expressed by all groups. This included concerns about the inclusion of renters and transition needs for rental properties. This is because both renters and homebuyers face the “split incentive problem,” where landlords or homebuilders select and pay for the heating equipment, but renters or homebuyers usually pay the utility bills, and cannot choose to benefit from long-term savings in exchange for higher up-front cost.

Some staff also highlighted the connection between equity and utility rates, highlighting long-term cost implications of decisions made during the strategy development process. This includes considering possible future increases in the cost of natural gas, as well as the impact of changes on rates over time, and the importance of ensuring that rates today are equitable and not disadvantaging future customers in favour of current ones.

2.2.2: Reliability

Consistent with Kitchener Utilities’ longstanding priorities, both customers and staff identified energy reliability as a central concern. Space heating and water heating, and increasingly cooling in light of a changing climate, are critical for both comfort and life safety, and significant interruptions to energy supply are not an acceptable outcome of changes in our systems.

In particular, there was concern across groups about the reliability of electricity, and the potential for interruptions to electricity service to disrupt home heating if electric equipment like heat pumps is used. Many staff and some customers indicated that they prefer to rely on a range of sources of energy, which for them meant not relying exclusively on electricity as a sole source of heating in homes. Others highlighted benefits of newer clean energy technologies, such as smart systems and battery storage, for improving reliability. Concerns were also raised about customers whose energy needs are currently not being met for reasons such as crowded housing conditions, and how further changes would affect them.

2.2.3: Change

People most commonly associated change with additional cost. While there was often a desire to do better for the environment, and concern about recent wildfires and other effects of climate change, many saw the benefits of the transition as coming long into the future for future generations, rather than for current customers. This was often seen as a barrier to action.

People we spoke with were at various stages of their change journey on this topic. Some found it very difficult to imagine a future as different as the futures we are anticipating. At the same time, many were encouraged that we are undertaking this planning to prepare for those different futures.

There was also considerable discussion of the pace of change. Some highlighted the importance of urgent action, either because of the climate emergency or because of the need to protect Kitchener Utilities' future business interests. Others were hesitant to make changes until features of the future energy system become more clear.

Stakeholders were the group that most significantly highlighted the importance of mindset and how opportunities and risks are framed for the success of energy transition work.

2.2.4: Kitchener Utilities as a business

There was concern, particularly from community members/customers and stakeholders, that changes in our energy context could mean our business would decline, and that this would have negative effects on the City's finances and create community liability for costs. It was suggested that we should be agile and focus on opportunities and not just risks, in assessing future potential business lines.

Connections between our assets, our rates, and our infrastructure maintenance and capital planning were a theme highlighted by some staff, since these are critical elements of utility business planning that could be affected by the clean energy transition.

All groups were eager to support partnerships, and favoured working collaboratively with other organizations such as utilities, governments, industry, and community organizations. This was, in part, a recognition of the fact that the energy services we provide are part of a broader energy system, with a range of important capacity holders, such as electricity system planners, that influence how the system will work in the future.

2.2.5: Information, education, and awareness

Concern about a lack of information, and particularly trusted information, was a consistent theme across groups. There was concern about health impacts of natural gas, and also concern that there are not practical alternatives to fossil fuels for space heating and water heating. While some expressed an openness to change, many indicated that they lacked the right information at the right decision points. There was widespread skepticism across groups around the costs of alternatives, and deep concern about being wrong.

Broadly, we heard that many in the public are looking for information and guidance about the changes they can make. Staff were consistently concerned about the accuracy of information provided to

customers and were often focused on technical concerns, such as the details of air source heat pumps or hydrogen blending.

Across groups, the importance of effective storytelling was highlighted. People are eager to see case studies and hear from people with direct experience of newer energy technologies. This kind of storytelling was seen as a key tool for bringing people along with changes in our energy systems.

2.2.6: Trust and responsibility

Many customers and community members told us that they see Kitchener Utilities as a reliable provider of energy services, and that they value this role that KU plays. Staff, as a result, consistently prioritize the value of trust customers place in them and Kitchener Utilities, and are committed to honouring that through words and actions. The best interest of customers and giving them meaningful choices was paramount.

At the same time, some were unsure about the motivation behind transition work, particularly at this early stage where we have questions rather than answers. This also relates to the implications of community ownership of the business, as the community is literally invested, and this means that these public conversations about the future of the utility are necessary long before decisions have been made.

A number of customers indicated that they see Kitchener Utilities as a trusted provider of information, and would look to us for guidance about their energy decisions, especially since trusted information is hard to find.



Part 3: Guiding principles for future phases

Principles can be described, as they were in the TransformWR strategy, as “a set of considerations for making decisions and setting priorities over time. They’re a guiding light for aligning our intentions and actions, and articulate a framework that decisions should be evaluated against.”

This section outlines four guiding principles, each of which are accompanied by a stated intention and three more specific objectives. We want the principles we have identified in this section to help us connect what we care about to our actions. They will form the foundation of the decisions made in the second phase of work for this project and will serve as a framework to develop evaluation criteria in Phase 2 to apply to different business options.

Guiding Principle 1: Make responsible, accountable, and financially rewarding business decisions

Our intention: “We will work to responsibly position our community-owned business for success as things change around us.”

We know that the energy services we provide for the community and the financial role we play at the City are both key contributions to our community’s success. We need to make responsible, accountable, and financially rewarding business decisions throughout the energy transition.

Objective 1.1: Follow sound business practices

We know that the success of Kitchener Utilities and the City as an energy service provider will depend on following sound business practices.

For potential new business lines, following sound business practices means thoroughly evaluating and examining any new business options with a critical lens, and with the support of the right business expertise.

For our existing business, following sound business practices means modelling out how changes to our customer base could affect our business model. This is also a critical part of planning responsibly for our current infrastructure and assets, and the work needed to maintain and replace them over the long term, since utility rates are often closely connected to the cost of infrastructure to provide that utility.

It also means prioritizing safety. Of course, Kitchener Utilities has always worked to keep the community safe while meeting its energy needs. We commit to continuing to prioritize and strengthen safety throughout changes to our business, and make sure that we continue to align with safety best practices.

Similarly, as an energy business, it is critical that our work meets our regulatory compliance obligations. Since regulatory environments can change over time, we will also consider regulatory risks that could arise as things change in the future.

Objective 1.2: Take action quickly to manage business risk and maximize opportunity

We know that our energy business in its current form faces risks from the clean energy transition. This, in turn, creates risks for City finances more broadly, and for the community that supports the City financially.

We know that we can't afford to wait to do this work. While the importance of averting the worst impacts of climate change on our community is one reason, it is especially critical to protect and nurture our business. While the industry changes affecting our customer base will have long-term effects, the things we might need to do in preparation can also have long time horizons. Proceeding quickly helps us to preserve our business options, and to make sure we don't fall behind changes in the energy industry. We will take action quickly, by advancing the strategy development project carefully but with urgency, while continuing to advance related work such as that outlined above.

We have an obligation to manage business risk through this work. As part of that, we need to consider both likely and unlikely changes and events that could affect our work and our energy systems.

Objective 1.3: Assess value holistically to find our best contribution

We know that a key part of securing our utility's future is focusing on our strengths, and filling in the gaps that we are best suited to fill. As part of this, we will consider what contributions the City and Kitchener Utilities are in the best position to make for the community's energy transition, and which can be more effectively played by other capacity holders in the community, as part of our commitment to partnerships. We also need to focus on solutions that can practically be implemented by the City.

While risks and costs will be critical considerations as we decide on our path forward, we have a unique opportunity to also focus on the broader benefits of various solutions, and the full value proposition that those solutions could bring to the community and our customers, now and well into the future. We will evaluate the scale of the risks and costs of potential approaches in light of the scale of the potential value that they could bring.

Guiding Principle 2: Serve customers as an affordable and reliable partner in the energy transition

Our intention: "We will work to empower customers and community members as their trusted partner in the energy transition."

We heard throughout our community engagement that many customers have a lot of trust in Kitchener Utilities. We are proud of the strong relationship we have built with the community, and we want to put this trust at the centre of our decision-making as we look to the future.

Objective 2.1: Pursue affordable, reliable, and predictable energy services for our customers

We know that the affordability of energy is critical to people and businesses across Kitchener. We want to find solutions that can help to ensure people across our community can afford the energy they need to support a high quality of life. As an important part of this, we will consider the different energy affordability needs of people with very different circumstances across our community, including renters, newcomers, those living with low incomes, and those who speak a variety of languages.

We know that reliable access to energy and the day-to-day life that it supports is critical in our homes, businesses, and industrial facilities. We want to find energy solutions that make our energy services and broader energy systems even more reliable. This is particularly important in light of the potential for global changes in fuel markets, and the more frequent exposure to extreme weather events like extreme heat as a result of climate change.

As things change over the next few decades, we know that customers and community members want to know what to expect. Predictability has value. As we pursue solutions and make related long-term changes to our business and services, we will work to make sure that people can see what is coming, so that they can plan ahead with confidence.

Objective 2.2: Empower customers with choice, and with trustworthy, accessible information

We know how important customer choice is. We will work to empower customers throughout the energy transition, so that they have what they need to make meaningful choices on the things that affect them most. This means making sure that people always have options for how best to meet their own energy needs, so that they can customize for their own circumstances.

At the same time, we know that our community members will be key actors and decision-makers in achieving local climate goals, and that many of our customers are looking for information, support, and guidance as they consider changes to their own energy use. We will work to support customers as key implementers of their own clean energy transitions, as part of meeting customer needs as well as aligning with the City's climate change commitments.

We know that, now more than ever, it can be hard to know what information to trust about the big changes that are happening in our society, including in our energy systems. We will position Kitchener Utilities to continue to provide trustworthy information and advice to customers and community members. This includes sharing stories and reliable data in a way that is accessible to people with diverse needs across the community, including through relatable case studies and through materials written in multiple languages.

Objective 2.3: Bring people along as things change

We know that people are at different stages of their own energy transition journeys. Some people are eager for these changes. Others have concerns. And others are just starting to hear about this, or are not yet sure what to think. This is true for both our customers and our staff.

We will work to bring people along with the changes that are planned. This means working to meet customers' needs while growing their awareness, understanding, and comfort with whatever changes may be happening. It also means making sure that our staff have what they need to fully contribute to future business directions, such as relevant training and certifications.

Guiding Principle 3: Contribute to a thriving community

Our intention: "We will work to make our community even better."

We know the critical role that energy, and the energy provided by Kitchener Utilities, plays in the lives of community members and customers across Kitchener. We want to help make sure that changes in our

community's energy systems, which are happening as part of the clean energy transition, leave us with an even better energy system and an even stronger community than we have today.

Kitchener Utilities' unique positioning as a community-owned energy business means that we need to satisfy two related goals. First, as an energy business and as outlined in Guiding Principle 1, we need to prepare for the energy changes that are happening in the energy industry, to make sure our business can continue to thrive in the future. Second, as a municipal government service, we need to consider and advance community goals and wellbeing as part of the energy transition.

Objective 3.1: Collaborate with partners

We know that energy is part of a larger system, and that the changes happening as part of the energy transition involve capacity holders and stakeholders from across the community and beyond. To help the community to thrive in a net-zero carbon future, collaboration with governments, utilities, industry, and other organizations will be critical. We will coordinate with and account for a range of partners, to help make sure that our energy system and the services we provide that support it meet the community's needs as things change, and that we are contributing in the most helpful way possible.

Objective 3.2: Do our part to address climate change

We know that one-third of GHG emissions released within Kitchener are the result of natural gas use, and that much of this gas is supplied by Kitchener Utilities. Based on climate science and the guidance of organizations like the Intergovernmental Panel on Climate Change (IPCC), we acknowledge the imperative to achieve net-zero emissions globally by mid-century to avoid the worst impacts of climate change, and that this means that the role of natural gas will change, in Kitchener and across the world. As an energy provider, we are committed to doing our part to help the community in the transition to clean energy, and to making plans that align with the broad range of ways we could get there.

Objective 3.3: Use clear metrics and align them with community-scale goals

We know that, to be successful, it's important to be clear about what we're trying to achieve, and how we will know if we are achieving our goals. This is even more important for Kitchener Utilities as a community-owned business, where our community is both our customers and our decisionmakers, through the Council that represents them. We will develop and report on clear and transparent metrics throughout this work. These metrics will consider a range of financial, energy, and environmental outcomes, such as tonnes of GHGs reduced per dollar spent, or amount of energy used per unit of work.

While energy and business outcomes will be critical for this strategy, we know that we also need to consider a broad range of outcomes for the community in our work. Our unique positioning as a community-owned business means that the wellbeing of our community is at the centre of our work, and this extends far beyond our energy-related services.

We know that the energy transition is a critical opportunity for multi-solving, where work to address one problem can be designed to address other problems. As we heard from our engagement, we know that many in our community are struggling, and that we share many challenges with communities across Canada and the world around affordability, equity and fairness, prosperity and economic development, resilience in the face of shocks (such as supply chain problems or extreme weather events), and

environmental impacts. These issues are integrally connected with each other and the ways our society uses energy, and so all of these must be addressed together. Communities that thrive in a low-carbon future will be those that use the energy transition as an opportunity to build a stronger community and ensure that no one is left behind.

We are committed to advancing approaches that help our community to address a broad range of issues, including affordability, equity and fairness, prosperity and economic development, resilience, and the environment. We are also committed to making sure our metrics assess this broad range of goals.

Guiding Principle 4: Plan for multiple energy futures with flexibility and focus

Our intention: “We will work to prioritize solutions that can adapt to and provide value in all energy futures.”

For success in the energy transition, we know we will need to be flexible while also being focused. Flexibility is needed because we don’t know exactly what type of energy technologies will be available and used in different sectors of the economy, or exactly when they will be used. At the same time, focus is needed, because we know that there are common elements across all the different scenarios where we reach net-zero emissions. We need to focus on elements that will play a role in different potential futures.

Objective 4.1: Rely on safe bet technologies and prepare for long shot technologies

The Canadian Climate Institute has modelled a broad range of scenarios, which show diverse ways we could achieve net-zero emissions at different scales. In their [2021 report](#), they categorize climate technologies as either “safe bets” or “long shots.” We need to account for both of these in our planning.

“Safe bets” are emission-reducing technologies and solutions that are already commercially available and face no major constraints to widespread implementation. These technologies are expected to do a lot of the work to achieve net-zero emissions, and play an especially important role in near-term emissions reductions. We will rely on safe bet technologies in developing our approach, as a critical part of ensuring that our approach is practical and achievable, will have value to the community, and will limit risk to the City.

“Long shots” are high-risk technologies and solutions with potentially high rewards that are still in early stages of development, and there are many of them in Canada and around the world. Some of these technologies will need to work in the long-term to enable net-zero emissions, but it is not yet clear which of these technologies will prove to be effective, affordable, and scalable down the road. Some of these technologies, for example those that could allow for high levels of hydrogen to be provided for home heating through the gas distribution system, could have significant impacts on our operations. This means that we must consider a broad range of potential long shot technologies, and take sensible steps to prepare to seize new opportunities and respond to technology changes and related changes in the industry that could affect our work as an energy utility in the coming decades.

Objective 4.2: Prepare for a broad range of net-zero carbon futures

We know that there are different ways that our community, Ontario, Canada, and the world can reach net-zero emissions, and we don't know exactly how things will develop. Given this uncertainty, we need to prepare for a broad range of possible net-zero futures, as part of efforts to future-proof the utility. We will consider the effects of a broad range of potential net-zero pathways.

While there are significant energy changes underway in our society, transformational changes happen as a series of incremental steps. This means keeping our eye on the ball for where we want to be well into the future, while building near-term steps to get there that are flexible and can be adjusted as circumstances evolve. Part of this dual positioning means considering both the near-term and the long-term impacts of our work. For example, part of the preparing for the long-term and the short-term includes considering issues of intergenerational fairness. We want our services to be affordable and to meet our community's needs both now and decades from now. This means we need to make sure that we are not putting heavy costs on future customers to benefit current customers, or vice versa.

Objective 4.3: Iterate, experiment, and learn

We know that, to prepare our business to thrive in multiple possible futures, we need to be prepared to try new things, and to do some things differently than we did before. This comes with uncertainty, and with the expectation that some things we try will work well the first time, and some things won't. We will build opportunities to prudently experiment into the work planned through this strategy. As we have throughout the first phase of the project, we will see doing, learning, and adjusting what we do in response as a key iterative process for enabling success. This flexibility will help us to adapt to changing policy and regulatory environments as they continue to evolve.



Part 4: Next steps

In Phase 1 of the Kitchener Utilities Clean Energy Transition Strategy, we have sought to invite customers, community members, stakeholders, Kitchener committees, staff, and Council into a problem-solving conversation on the changes that we are facing and the opportunities they might bring. The discussions we have had in this first phase have formed the basis of the guiding principles to inform future phases of the work.

4.1: Expected components of Phase 2

Phase 2 of the project, scheduled to commence at the start of 2024, is focused on determining the way forward together through detailed, collaborative option assessment and recommendation of an integrated approach.

We need to do two related aspects of work to recommend an approach. The first is to look at new potential business offerings or program expansions, in light of the opportunities for energy utilities that arise from these changes in our energy systems. The second is to assess our existing business, such as our assets, rates, and revenues, under a broad range of potential future conditions and scenarios. This work involves stress testing our business model against various situations that could arise, and considering opportunities to adjust what we do to prepare for those different possibilities.

To be able to assess options for both potential businesses and our current business, we will need to develop detailed evaluation criteria that address all the guiding principles and objectives outlined in this paper.

Expected outputs of Phase 2 include: a public report assessing the full range of options and identifying a recommended approach concurrently; a summary of Phase 2 engagement results, and; a report to Council recommending an integrated approach and next steps.

4.2: What you'll see next

This discussion paper is being shared back with customers, community members, stakeholders, Kitchener committees, staff, and Council as part of continuing to build relationships and work collaboratively across groups to shape the future of our community utility.

While detailed timelines are under development for Phase 2 of the project, informal conversations are continuing with all groups, and a stakeholder brainstorming workshop is planned for early 2024.

We expect to bring the results of Phase 2 work and further engagement back to Council, staff, and the public in late 2024/early 2025.