

# LEADING THE CHARGE

A Vision for Alberta's  
Electricity Future



Final • September 2024

# About Alberta’s Electricity Future

Established in early 2023, [Alberta’s Electricity Future](#) is a multi-year initiative of the [Energy Futures Lab](#). It brings together electricity leaders and users along with innovators and changemakers to explore how Alberta’s electricity system might collaboratively orient and organize itself to meet the needs of the net-zero economy of the future. The initiative collaborates and partners with entities from across the electricity system, including traditional voices such as electricity producers, utilities, industrial consumers and government, as well as historically underrepresented groups such as Indigenous Rights and Title holders, rural and agricultural representatives, as well as people struggling with energy poverty, and youth. Together, we are identifying and converging on the practical next steps needed to enable greater customer choice and flexibility while maintaining the safety and reliability of the electricity system as it grows and expands to meet the needs of a prosperous, affordable, net-zero economy for Alberta. It’s a smart and inclusive way forward for Alberta: one that embraces sustainability without compromising on the values and principles that have made our province what it is today.

## Contents

|  |    |
|--|----|
| Background and context.....                              | 1  |
| Why does Alberta need an electricity vision? .....       | 4  |
| Why the focus on customers? .....                        | 5  |
| Forces creating momentum for change .....                | 6  |
| A future we believe in.....                              | 8  |
| Guiding principles: defining the solutions sandbox ..... | 10 |
| How you can take part .....                              | 12 |

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[Generate Canada](#) works in close partnership with the [Smart Prosperity Institute](#) to achieve a shared vision for a strong and inclusive economy that thrives within nature’s limits. Integrating the Institute’s world-leading policy and research expertise, Generate Canada’s Solution Spaces foster collaboration across sectors and value chains to create, test, and scale innovations for some of the most challenging sustainability issues of our time.

[Canada Plastics Pact](#) | [Canadian Alliance for Net-Zero Agrifood](#) | [Circular Economy Leadership Canada](#) | [Energy Futures Lab](#) | [Nature Investment Hub](#)

# Background and context

## What a vision is for

Decarbonizing our energy system is a hugely complex undertaking; one in which electricity has a significant role to play. A vision for where we want the electricity system to take us and what we want it to enable can be helpful in providing a clear picture of the desired, long-term future we collectively aspire to – a North Star that will guide us as we navigate the as-yet unknown paths towards our ultimate destination. A vision also deals with the deeper questions of “why?” and “where to?” anchoring planning and action in the original intent and purpose to steadily guide systems-level change over the long term.

Because the work of reorienting our electricity system must be highly coordinated across many key players, a vision is essential for mobilizing resources and aligning stakeholders, Rights holders and Title holders with distinct and sometimes conflicting priorities and perspectives around the steps required to successfully navigate together towards our goal.

## What a vision is not

A vision is not a roadmap or an action plan. That comes next. But while carefully considering our end goals may take additional time on the front-end, it will ultimately help us to move faster and make swifter adjustments to stay on course as circumstances evolve.

## Our approach

This vision is centered around the emerging and changing needs of customers — individuals, Rights and Title holders, businesses, and communities — that use electricity in Alberta.

As part of Alberta’s Electricity Future, the Energy Futures Lab is committed to engaging and meaningfully incorporating the perspectives and feedback of groups impacted by the electricity system and its design, especially those not regularly consulted in system developments. The Lab recognizes we live and work on Indigenous and Treaty territories and acknowledges the importance of honouring, recognizing and learning from Indigenous perspectives, Traditional Knowledge and Science in relation to the electricity system and infrastructure development.

## Planting the seeds of reconciliation

Our commitment to engaging Indigenous voices in the work of Alberta’s Electricity Future reflects the Lab’s acknowledgment and respect for the sacred relationship that Indigenous Peoples have with the land, as well as the shared responsibility of all people in caring for it. In developing this vision, the Lab has sought to deepen our understanding of the history and principles of Treaty and their connection to how we work towards reconciliation today. While the Lab’s journey on this path is still in progress, this vision reflects where we are today and the spirit of allyship in which we hope to continue to walk together.

We also recognize the inadequate representation of Indigenous Knowledge and Science in our process to-date. As we move into the next phase of the initiative, we reaffirm our commitment to continue seeking support and learning from Indigenous Elders and Knowledge Keepers. This will help us raise Indigenous ways of knowing and working in our collective efforts and continue to explore what a future electricity system looks like as Treaty partners.

Who’s behind this vision?

This vision is the result of the combined insights and perspectives of Alberta’s Electricity Future coalition members. It has been built by Albertans, for Albertans, with an eye to strengthening partnerships with Indigenous Rights and Title holders. It is championed by those with deep ties to the land and a strong understanding of what makes this place and its people so unique.

We acknowledge and respect that many Indigenous Nations, communities and people who live in the province don’t think of themselves as Albertans, and we remain committed to seeking out and including their perspectives through ongoing engagement around this work. We hope to ensure the vision is also representative of the needs and aspirations of all those who call Alberta home, and contribute to the longevity and wellbeing of their cultures, practices, people and communities.

Participants

The vision for Alberta’s Electricity Future has been crafted by the Energy Futures Lab, drawing upon insights and discussions from workshops involving the Alberta’s Electricity Future Coalition. While participants contributed valuable perspectives and input during these workshops, the vision itself is authored by the Energy Futures Lab team and reflects the collective synthesis and analysis of ideas, informed by the collaborative efforts of workshop participants, as well as partners who have been engaged to-date in providing additional perspectives towards its review and refinement. **This statement clarifies that while each stakeholder played a crucial role in shaping the discourse and context surrounding the vision, it does not necessarily represent, in part or in whole, the views or beliefs of any individual or organization.**

Alberta’s Electricity Future Coalition

- Alberta Cooperative Energy
- Alberta Energy Efficiency Alliance
- Alberta Federation of Rural Electrification Associations (AFREA)
- Alberta Forest Products Association
- Alberta Innovates
- Alberta Utility Billing
- AltaLink
- ATB Financial
- ATCO Electric
- BluEarth Renewables
- Cameron Brown - Independent Expert
- Canada West Foundation
- Canadian Renewable Energy Association

- Canderel Management
- Capital Power
- City of Calgary
- City of Lethbridge Electric Utility
- Decentralised Energy Canada
- Direct Energy
- Emissions Reductions Alberta
- Energy Storage Canada
- EQUUS
- FortisAlberta
- FutEra
- Hopewell Real Estate Services
- Independent Power Producers Society of Alberta (IPPSA)
- Indian Resource Council
- Industrial Power Consumers Association of Alberta (IPPCA)
- Xakiji (Chief) Lee Crowchild — Independent Expert
- Lionstooth Energy
- Monica Curtis — Independent Expert
- Neutral Markets
- Pembina Institute
- QUEST Canada
- Rob Baker — Independent Expert
- SAIT
- Samson Cree Nation
- Sheldon Fulton — Independent Expert
- SouthGrow Regional Initiative
- Steve MacDonald — Independent Expert
- Student Energy, University of Calgary Chapter
- TransAlta
- Transition Accelerator
- University of Alberta
- Utilities Consumer Advocate

Additional Engagement

- Alberta Direct Connect Consumer Association (ADC)
- Alberta Federation of Rural Electrification Associations (AFREA) members
- Bob Williamson — Independent Expert
- Canadian Poverty Institute’s Energy Poverty Roundtable
- Energy Futures Lab Fellows and Ambassadors
- First Nations Power Authority, 8th Annual Indigenous Clean Energy Forum participants
- Janice Makokis — Independent Expert
- Jason Bradley — Independent Expert
- Jeanne Crowchild — Independent Expert
- Levi Wild — Children Of The North Project Corp.
- Opimoyaso Group
- Poverty Talks! Steering Committee
- Student Energy, University of Calgary Chapter Executive Team and *Bridging Perspectives: The Road to Net-Zero Conference* participants
- Regional Economic Development Initiative for Northwest Alberta
- Rural Alberta Engagement Session Participants
- Rural Municipalities of Alberta (RMA)

Representatives from:

- Samson Cree Nation
- Heart Lake First Nation
- Papaschase First Nation
- Chiniki First Nation

Definitions

Defining ‘the electricity system’

We define the electricity system and the actors involved as encompassing:

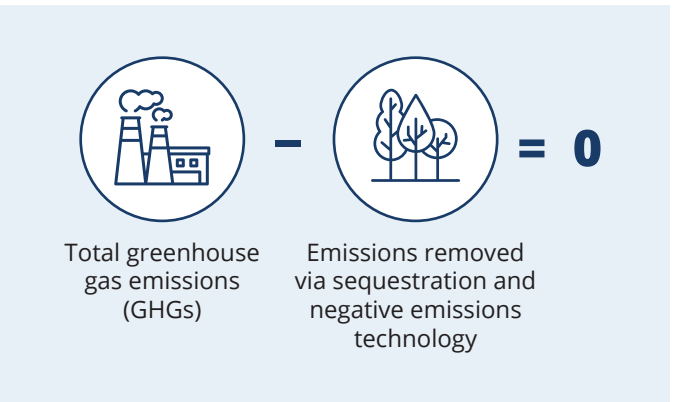
-  **People** — individuals, Rights and Title holders, communities, and businesses that rely on consuming electricity as a basic need, and stand to be affected by changes to the system
-  **Power Producers** — owners and operators of electricity generation facilities
-  **Wires Owners** — owners and operators of electricity delivery infrastructure (both transmission and distribution)
-  **Retailers** — selling electricity to people and businesses
-  **Market operator** — developing the rules, access, and operation of the wholesale market
-  **Regulator** — regulating electricity markets to protect social, economic and environmental interests of Alberta
-  **Government** — developing relevant federal, provincial, and jurisdictional policies and mandating regulations that govern the electricity system

Defining the term ‘customer’

We refer to customers often throughout this document and recognize that this term is used differently here than in other contexts and its meaning may vary depending on the reader’s vantage point into the electricity system. By customer we mean any “end-user” or “electricity user”. Our work categorizes customers into four primary groupings listed on [page 5](#). We use the term customer (rather than end-user or rate-payer) as a reminder that this issue matters because it affects real people, their lives and livelihoods.

Net-zero

A net-zero future is one that firstly eliminates or reduces greenhouse gas (GHG) emissions produced — direct and indirect — and addresses the remaining emissions through use of offsets and removal technologies.



Alberta has committed to the aspiration of realizing a net-zero economy by 2050 in its [Emissions Reduction and Energy Development Plan \(2023\)](#). The electricity system is the key to achieving this, and will need to decarbonize earlier, accelerating pathways for other sectors to do the same.



# WHY DOES ALBERTA NEED AN ELECTRICITY VISION?

For the past several years, people in Alberta have been living through a protracted period of upheaval as global energy systems undergo dramatic and rapid shifts to realign to the goal of net-zero.

This moment of 'net-zero churn' is messy, uncertain and uncomfortable, leaving many electricity system stakeholders in the province craving clarity on a way forward that will meet the electricity needs of today and the future, while avoiding shortsighted fixes that handicap Alberta's achievement of a net-zero electricity grid.

Since first illuminating homes and powering businesses in the late 1800s, Alberta's electricity system has successfully connected communities in nearly every corner of the province, and built a truly remarkable grid that is safe, generally affordable, and reliable — one that enables many of the comforts and conveniences people in Alberta enjoy today. Now, players across the system are responding to new factors that fall outside (and sometimes run contrary to) what Alberta's electricity system was designed to do. Many of these are the result of changing customer expectations and needs.



At the same time, countless potential paths to net-zero are being explored and tested globally and clear winners have not yet emerged. What *is* clear is that emissions-free electricity is foundational to most, if not all of them. It is also becoming apparent that the system design that has brought us to this point won't be able to successfully solve for the changing needs and expectations of customers. To continue to ensure abundant, safe, reliable and affordable electricity, it needs an upgrade.

This vision outlines imperative principles that will help us successfully navigate both emerging realities AND our expanded ambitions. Taken together, they serve to empower decision-making at an individual, organizational and system level, and will help align and coordinate actions that unlock a future-fit electricity system for Alberta. Critically, they centre the needs and desires of customers — people, communities and businesses, and hold the greatest potential for providing the foundational underpinnings for Alberta to increase its competitiveness in a shifting global economy, and prosper in the decades ahead.

## Why the focus on customers?

In contrast to most provinces, where residential usage dominates electricity demand, Alberta's economically significant and energy intensive industrial sector drives the majority of consumption, with residential customers accounting for only around 20%. Consequently, some may question the need for equal consideration of all customer segments. Currently, regulations stipulate that all connected customers must share equal responsibility for costly transmission and distribution infrastructure, disproportionately burdening residential, rural, commercial, institutional, and small industrial customers. To foster fairness and inclusivity, we advocate for a future system that values all perspectives, ensuring that no segment is marginalized or left out of the decision-making process.

Our approach focuses on considering the system from four, interconnected customer lenses:



**Industrial**



**Commercial**



**Residential**



**Rural/Remote**

**In reframing Alberta's electrification challenge by putting customers at the centre, the risks to continuing to make siloed, small-scale adjustments at the margins of the issue come into focus.**



### What about a separate Indigenous lens?

**Today, Indigenous communities have members representing many, if not all, four customer perspectives outlined. As actors in the electricity system, they may have industrial and commercial businesses and residential and rural members, therefore, we took the approach of considering the perspectives of Indigenous people, businesses and communities within each of the four lenses.**

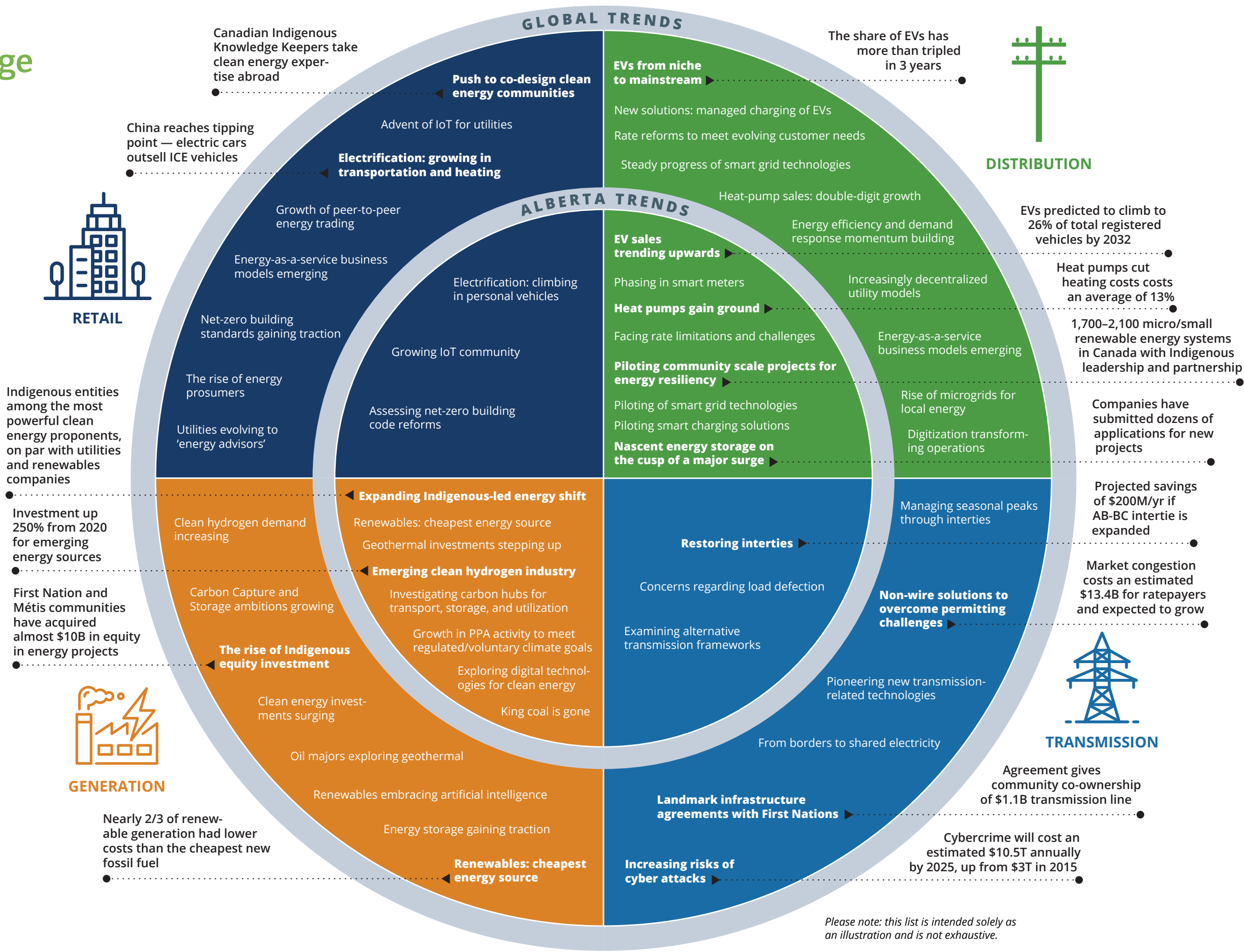
**Acknowledging that some may not view themselves as part of these larger groups, or prefer consideration distinct from their non-Indigenous counterparts, going forward we will continue to seek advice and input from Indigenous people, businesses, groups, and communities in order to better understand how they might approach this transformation differently. We will also continue to take opportunities offered to better understand and represent the diversity of Indigenous perspectives on our work, and support each other's aims.**

# Forces creating momentum for change

Changing demands of our electricity system are a result of forces and pressures that lie beyond anyone’s ability to control, and they’re mounting.

Existing market signals are struggling to keep pace with emerging realities, threatening short-term affordability, competitiveness of local industry in global markets, and the desirability of Alberta as a destination for business and investment in an increasingly net-zero focused world. To move forward, Alberta will need to navigate a ‘perfect storm’ of changes and challenges impacting everything from the electricity generation mix, to continued demand growth, system reliability, the assertion of Indigenous Rights and interpretation and application of Treaties, as well as tensions in land use and ever-shifting customer expectations.

Taken together, these long-term trends clearly show that, to continue to power Alberta’s progress, we must expand on the strong foundations of the province’s electricity system to meet our growing ambitions. To create the momentum required to initiate this shift, it will take the full system’s alignment behind this new direction, as well as coordinated action. Moreover, these trends make the case that the shift needs to start *now*, as the electricity system will need to lead the charge, moving ahead of the decarbonization curve, given its essential role in accelerating pathways for other sectors to decarbonize.





# A future we believe in

We asked some of the best and brightest minds of Alberta’s electricity system to think about the future that Alberta’s electricity system needs to empower, and the changes in thinking required to reorient us toward it. These are the key shifts they identified:

## The system delivers more than just electrons

Just as smart phones make it possible for us to do much more than simply talk with our friends and families, the upgraded electricity system will empower people and businesses to expand and redefine what it means to be an electricity customer. Utilities will have the opportunity to expand their business models beyond simply selling kilowatt hours because the system will encourage the creation and sale of a vastly expanded set of goods and services; ones that help educate and enable customers to produce, use, monitor, direct, store and automate electricity in ways that were once unimaginable. This service-oriented design will nurture new entrepreneurship and business models for all electricity system actors, creating new efficiencies and potentially even new income streams for customers who were once limited to a very narrow set of choices and actions.

## The system reinforces resiliency through greater interconnection

Alberta’s future electricity system will enable and enhance multi-directional connections between neighbours, municipalities, First Nations, Métis Settlements, provinces and across international borders. This will be facilitated, in part, by nimble, distributed, and networked solutions and create a system that has the ability to predict, calculate, coordinate and balance demand and supply through inter-and intra-jurisdictional imports and exports. This will increase resilience in the face of service disruptions from planned events (maintenance, intermittent generation) or unforeseeable ones (line disruptions, natural disasters) and foster power-sharing and transmission improvements, as well as new opportunities for electricity exports.

## The system utilizes policy as an accelerant and catalyst

With increased customer choice, the dynamics between regulated and deregulated sectors of Alberta’s electricity system will evolve, making agile and transparent policy crucial for driving transformative innovation. Policies informed by those most affected, and implemented through innovative regulatory frameworks, will spark investment, entrepreneurship, and lead to more equitable and lasting outcomes. Whether by adapting market rules, modifying processes — such as enhancing requirements for Free, Prior, and Informed Consent — or removing other obstacles to progress, clear and consistent policy direction will reduce uncertainty for industry and investors. This clarity will boost confidence and participation in the innovation ecosystem, while also providing safeguards when regulations and market signals need adjustment to stay on course.

## The system maximizes customer choice

The electricity system must be reoriented, placing the needs of customers — people, Rights and Title holders, communities and businesses — at its centre. This will facilitate greater transparency, empathy, education and build needed capacity to empower self sufficiency. Customers can be as deeply involved or as little involved as they choose in all aspects of their interaction with electricity — as buyers, sellers, generators, users, and many other new possible roles. This will enable the benefits of the system to be shared more equitably.

## The system solves for consistency and affordability

In a customer-focused electricity system, all individuals, Rights and Title holders, communities, and businesses will enjoy predictable and equitable electricity rates through healthy competition and cost-sharing initiatives. Energy poverty will be rare in this new era. With clear and consistent definitions for electricity affordability, we will create processes to track it, and have the power to take action to address forces working against it, if necessary. Implementing better supports and building capacity will help customers make informed choices about meeting their electricity needs through clear, straightforward, and empathetic communications and simplified processes. Equitable access to processes, programs and other opportunities will be prioritized.

## The system enhances economic opportunity, investor confidence and job creation

Affordable, abundant, emissions-free electricity is critical to helping Alberta sharpen its competitive edge for attracting industry and jobs. It will enhance Alberta-based companies’ competitiveness in a global market, as well as drawing new business to the province. It will further boost our ability to entice domestic and international investors seeking stable, long-term returns, and drive investment to rural, remote, and Indigenous communities. It can also stimulate job creation in new growth industries across the province, and create new opportunities for export revenue, as well as helping leverage its natural resources, and associated expertise and infrastructure. Moreover, securing resources and building key infrastructure to support the growth of the system in partnership with Indigenous Nations, through Indigenous consent, governance and ownership will present a competitive advantage.

# Transforming our electricity system is both possible and empowering

It’s important to note that while these points illustrate what types of shifts we believe are needed to unlock the future we aspire to, they stop short of speculating *how* they will be achieved. More work will be required to determine what levers will need to be pulled in order to effect these shifts. We know that it will take a careful balance of policy-driven and market-driven solutions, all of which are underpinned by economic forces rooted in customer choice and purchasing power.

# Guiding principles: defining the solutions sandbox

Pathways that will expand and decarbonize Alberta's electricity system are already emerging, but not all are created equal.

Acknowledging the complex web of competing interests and perspectives on how to move forward, and prioritizing building relationships among Indigenous Partners, landowners, policy makers, business owners and other customers to better understand their preferred approaches will be critical. Retaining optionality, to avoid locking-in a course where better, more viable options

may emerge with increased innovation is also advisable. As affordability must be a key feature of all possible scenarios, we have integrated it as a component of each of the following principles to ensure it can't be traded-off.

Our coalition sees these principles as the guardrails needed to guide solutions, ensuring progress is focused on the best possible outcomes for all customers, regardless of geographic location, income or position in the system.



## Optimize First

- Approach transforming the system by first leveraging what is already built. By optimizing existing technology, infrastructure, skill sets, and other solutions, we can build critical early momentum for the shift, maximize the value of existing investments, and avoid stranding infrastructure. This will help keep electricity more affordable for customers.
- Prompt [the whole system](#) to invest in energy conservation and efficiency through sustainable approaches.
- Integrate customer-side management tools and other technologies, resources, or processes to ensure there is a demonstrable business case for enhancing the utilization of the built environment (e.g. through growing the community of [prosumers](#), virtual power plants, and microgrids.)
- Leverage and enhance local and Indigenous knowledge and skills to optimize solutions that work best for communities and generate long-term capacity and benefits suited to specific regions.



## Diversify Solutions

- Encourage the whole system to utilize diverse solutions to meet the bulk and distributed systems' operational needs and keep electricity affordable for all customers.
- Remove barriers that lock in a 'one-size-fits-all' approach to solutions, choices, and supports, enabling a system that is more robust, resilient, and regionally informed.
- Create conditions that allow for more decentralized electricity solutions informed by, and tailored to customers, that reduce emissions, create jobs and meet individual, Rights and Title holder, community, and business needs at the lowest possible cost to customers.
- Create space for decision-making to incorporate learnings, experiences, and Traditional and Land-Based Knowledge and Science.



## Facilitate Equity

- Balance the cost of achieving net-zero electricity between ratepayers (who are disproportionately burdened by infrastructure build-out costs relative to their geographical location) and taxpayers, and ensure an equitable and consistent distribution of benefits.
- Provide tailored resources to support rural municipalities, First Nations and Métis Settlements in the process of meeting their electricity goals and support industry in working with them in informed, transparent, and mutually beneficial ways.
- Seek a more complete and shared understanding of affordability and its true impacts on people (e.g. measuring affordability as a percentage of disposable household income spent on total energy costs).
- Make the provision of affordable and accessible electricity to all people in Alberta a metric of success that the whole system is accountable to.
- Support the dignity of people experiencing energy poverty by viewing it from the lens of how to support them to move out of it, not continue to penalize them.
- Implement education that empowers substantial, widespread energy literacy that results in greater customer agency over electricity choices.
- Partner with Indigenous communities on joint project development, while also acknowledging and taking steps to address colonial legacies, systemic racism, and other structures impeding greater self-determination.



## Embrace Environmental Integrity

- Build an electricity system that serves individuals, Rights and Title holders, businesses and communities in a way that ensures a healthy natural ecosystem that is resilient to changing conditions.
- Ensure Alberta's air, land, water and people are protected as we thoughtfully develop our energy system.
- Prioritize end-to-end circular solutions, and ensure waste considerations are factored into upfront planning and decision making.
- Include Indigenous Knowledge and Science in planning for energy projects.



## Adapt to Change

- Advocate for policies and regulations that keep pace with changing realities and provide clear boundaries and goals without unduly constraining potential solutions.
- Embrace technological and scientific advancements and integrate Indigenous Knowledge and Science to address changing demands in energy consumption and production while removing regulatory barriers to increase innovation and reduce investment risk.
- Advocate for and adopt an expanded view of customers and the increasingly multi-faceted roles they play in the system.
- Champion policies, regulations and market design(s) that couple the electricity use of individuals, Rights and Title holders, communities and businesses to electricity supply.

# PRINCIPLES OF ALBERTA'S NET-ZERO ELECTRICITY SYSTEM

# How you can take part

## Spread the Word

Share this vision with your networks on social media.



@LabEnergy



Energy Futures Lab



energy futures lab



@energyfutureslab\_ca

## Sign-Up For Progress Updates

Join the Energy Futures Lab Newsletter or follow us on social media for the most up-to-date information on Alberta's Electricity Future and timely news about future updates to this vision.

Sign up

## Get in touch!

We're grateful for your interest in Alberta's Electricity Future.

To learn more about the initiative, please contact:

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