

LEADING THE CHARGE

A Vision for Alberta's
Electricity Future



Draft v1.0 • March 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 electricity voices such as industry and government, as well as historically underrepresented groups such as Indigenous Rights and Title holders, rural constituents, 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, net-zero economy for Alberta. It's a smart and inclusive way forward for Alberta that embraces sustainability without compromising on the values and principles that have made our province what it is today.

Leading the Charge: A Vision for Alberta's Electricity Future is produced by the Energy Futures Lab —
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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 is 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.

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 with distinct priorities and sometimes conflicting perspectives around the steps required to successfully navigate together towards our goal.

Moreover, an inspiring vision motivates individuals to strive for transformative change, tapping into their intrinsic motivations. While short-term planning addresses tactics, a vision deals with the deeper “why” and “where to,” providing purpose crucial for navigating systemic transformation’s complexities.

What a vision is not

A vision is not a roadmap or an action plan. It won't provide the quick wins or easily-actionable next steps that feel more accessible to people itching to roll up their sleeves and get to work. Those pieces come later. But while the act of carefully and deliberately considering our end goal takes time, it will ultimately help us to move faster and allow us to make swift adjustments to stay on course as circumstances evolve.

Drafts, revisions and continued engagement

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. As of March 2024 we have taken initial steps in this important piece of the work, but recognize that significantly more is needed. Through the spring we

will continue to engage and deepen relationships with Indigenous leaders and communities, rural communities, organizations representing marginalized communities, student and youth groups, among others.

In recognition of this ongoing engagement process, this document does not represent a permanent, finalized version of the vision, but rather a ‘roughly right’ work-in-progress to which we'll continue to make edits and upgrades. As the rubber of policy decision-making hits the road in the coming weeks and months, we felt there was value in sharing our group's thinking to-date in order to inform both public and private conversations on the subject of modernizing Alberta's electricity system. We are committed to publishing updates to this content at regular intervals over the coming months in order to incorporate and more accurately represent the many views and understandings of this work as it applies to communities across Alberta.

Planting the seeds of reconciliation

Our commitment to engaging and raising Indigenous voices in the work of Alberta's Electricity Future reflects the Energy Futures Lab's acknowledgement and respect for the sacred relationship that Indigenous people have with the land. We recognize that this relationship has been affected through the making of treaties, as well as subsequent agreements, laws, legal precedents and practices. To continue to nurture our partnership and move forward together in a good way, we acknowledge that more work is needed to educate ourselves and seek to better incorporate this expanded understanding into our work. It is our heartfelt aspiration to have the knowledge and the perspectives of Indigenous peoples inform our shared vision, fostering a spirit of collaboration as we continue to work alongside one-another towards ensuring the respectful and peaceful shared stewardship of the land in the original spirit and intent of treaty.

Opportunities for input

As part of our commitment to ‘working out loud’, we invite anyone interested in sharing their opinions on the content of this vision to provide feedback through Thought Exchange. Please see [page 12](#) for more information on how to participate.

Who’s behind this vision?

This vision is the result of the combined insights and perspectives of Alberta’s Electricity Future initiative participants. 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 within the province’s borders don’t think of themselves as Albertans, and we are committed to seeking out and including their perspectives through ongoing community engagement around this vision. Through that 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 well-being of their cultures, practices, people and communities.

Participants

The draft 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 and 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, in part or in whole, represent the views or beliefs of any individual 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 Reduction Alberta
Energy Storage Canada
EQUUS
FortisAlberta
FutEra Power
Hopewell Real Estate Services
Independent Power Producers Society of Alberta (IPPSA)
Indian Resource Council
Industrial Power Consumers Association of Alberta (IPPCA)
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 Federation of Rural Electrification Associations (AFREA) members
Canadian Poverty Institute, Energy Poverty Roundtable
Energy Futures Lab Fellows and Ambassadors
Opimoyaso Group
Poverty Talks! Steering Committee
Student Energy, University of Calgary Chapter Executive Team and Bridging Perspectives: The Road to Net-Zero Conference participants

Representatives from:

Samson Cree Nation
Heart Lake First Nation
Paspaschase First Nation

Definitions

Defining ‘the electricity system’

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

People — individuals, communities, and businesses that rely on electricity

Power Producers — owners and operators of electricity generation facilities

Wires Owners — owners and operators of electricity delivery infrastructure (both transmission and distribution)

Retailers — businesses responsible for selling electricity to people and businesses

Market operator — entity responsible for developing the rules, enabling access, and operating the wholesale market

Regulator — entity responsible for regulating electricity markets to protect the social, economic and environmental interests of Alberta

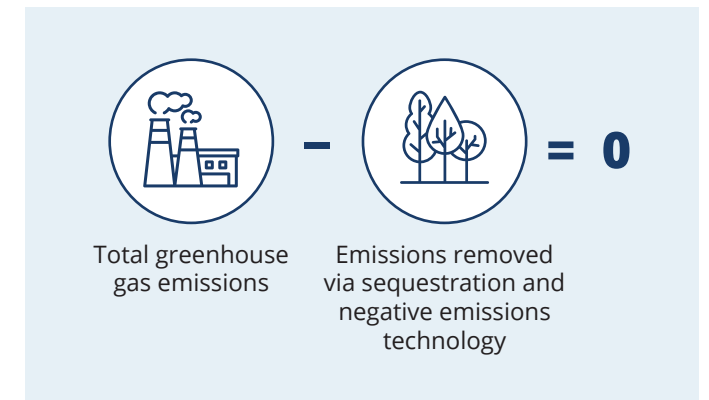
Government — bodies responsible for developing relevant federal, provincial, and jurisdictional policies and mandating regulations that govern the electricity system

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 depend on the reader’s vantage point into the electricity system. For the sake of clarity, by ‘customer’ we mean any and all of the four groups listed on [page 5](#), not exclusively residential customers. It is synonymous with the terms ‘end-user’ or ‘electricity-user’ but we are choosing to use this term 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 balances greenhouse gas emissions produced — direct and indirect — and the amount taken out of the atmosphere through the use of removal technologies or offsets.



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

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 net-zero.



Many of these factors 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. It needs an upgrade.

This vision outlines additional principles that correspond to both new realities and our expanded ambitions that empower system players to make decisions, and align and coordinate actions that unlock a future-fit electricity system for Alberta. It holds customers — people, communities and businesses — at the centre, and provides Alberta with the foundational requirements to increase its competitiveness in a shifting global economy and prosper in the decades ahead.

We are at a threshold where the road that has brought us to this point is ending, but the road ahead is not yet clear. 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 the achievement of a net-zero electricity grid in the province.

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 system 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) the parameters of what Alberta's electricity system was designed to do.

Why the focus on customers?

In contrast to most provinces, where residential usage dominates electricity demand, Alberta's industrial sector drives the majority of consumption, with residential customers constituting only around 20%. Consequently, some may question the need for equal consideration of all customer segments. Currently, regulations stipulate that connected customers foot the bill 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 one is marginalized or left behind in 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.

We consulted with advisors ahead of launching the project on whether or not a separate Indigenous lens might be appropriate. We received the advice that the perspectives of Indigenous people, businesses and communities needed to be incorporated holistically within each of the four lenses already outlined. This is the approach we have adopted in the initiative's design.

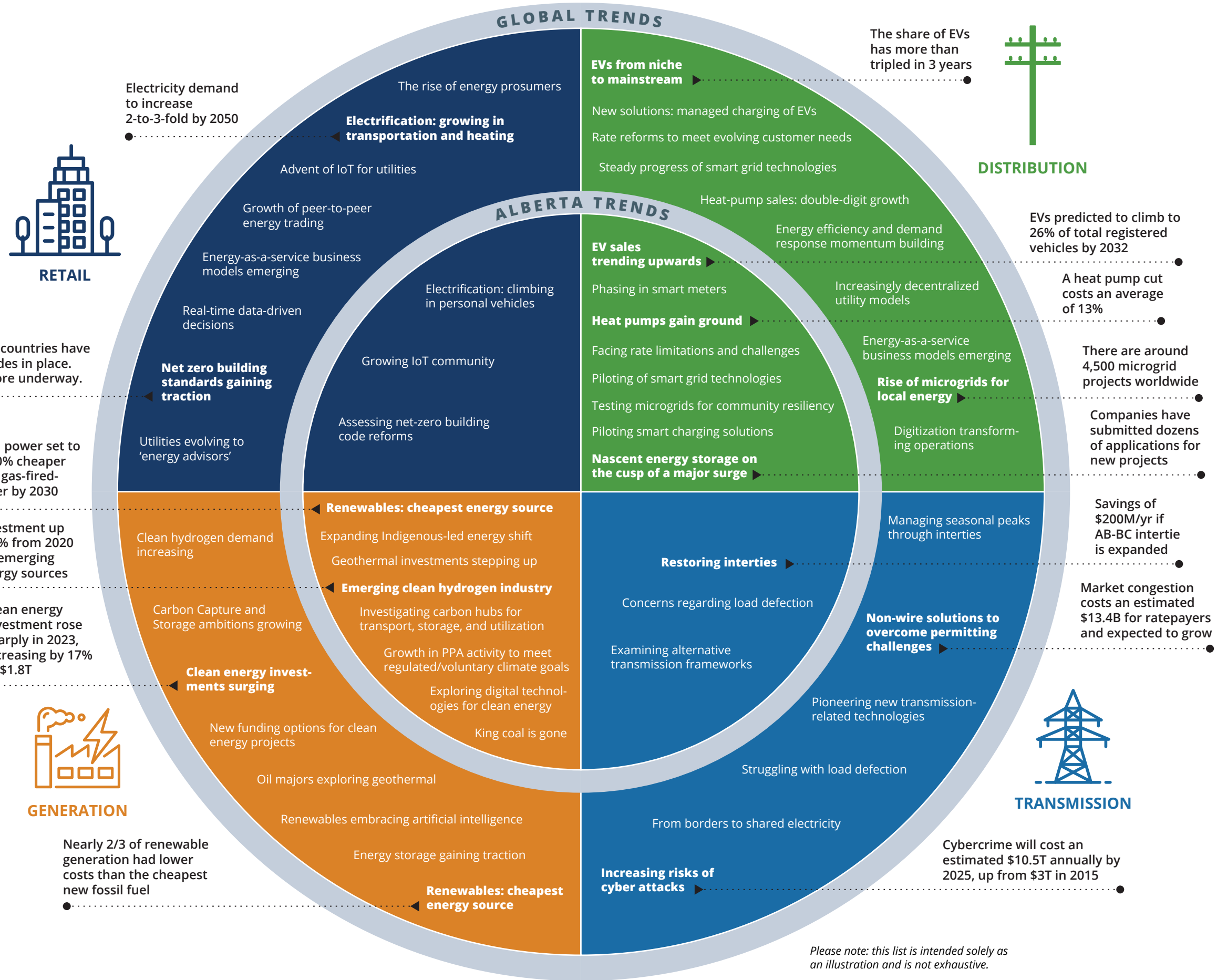


Forces creating momentum for change

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

From multiple customer perspectives, this 'perfect storm' of changes and challenges to the electricity generation mix, market behaviors, system reliability, and customer expectations is manifesting as extreme and persistent volatility that market signals are struggling to keep pace with — threatening short-term affordability, future competitiveness of local industry in global markets, and the desirability of Alberta as a destination for business in an increasingly net-zero focused world. As a growing province with ever-increasing demands for electricity, we know that if left unchecked these challenges will only grow.

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 the increased ambitions of our future. To create the momentum required to initiate this shift, it will take the full system's collective alignment behind this new direction as well as its combined will and action. Moreover, these trends make the case that the shift needs to start now, as electricity will need to lead the charge, moving ahead of the decarbonization curve, as its role in accelerating pathways for other sectors to decarbonize is essential.



Please note: this list is intended solely as an illustration and is not exhaustive.

A future we believe in

We asked some of the best and brightest minds of Alberta's electricity system to think about the kind of future they believe that Alberta's electricity system needs to empower, and the shifts in thinking required to move from how the system works today to the future they envisioned. These are the key shifts they identified:

The system delivers more than just electrons

Like smart phones make it possible for us to do much more than just talk with our friends and families, the new electricity system will empower people and businesses to redefine what it means to be an electricity customer and allow them to do more. Utilities will no longer be limited to simply selling kilowatt hours (kWh) because the system will encourage the creation and sale of a vastly expanded set of goods and services that enable people, communities, and businesses 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, 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, communities, municipalities, regions, provinces and across international borders. This is facilitated, in part, by nimble, distributed, and networked solutions. The result is a system that has the ability to predict, calculate, coordinate and balance demand and supply through inter- and intra-jurisdictional imports and exports, creating resilience in the face of unexpected disruptions, on top of new opportunities surrounding electricity exports.

The system utilizes policy as an accelerant and catalyst

As a result of greater customer choice, the interplay between regulated and deregulated parts of Alberta's electricity system is changing, and responsive, agile and transparent policy will be essential to continuing to enable innovation. Through targeted policies that could range from research funding, tax incentives, or regulatory frameworks, governments will propel investment in modernizing the electricity system. Recognizing that different parts of the electricity system are impacted by policy in different ways — whether through market design and rules, regulation, its influence on investment, or by removing hurdles from paths towards desired outcomes by other means — clear and consistent policy signals will reduce uncertainty for industry stakeholders, fostering greater confidence and participation in the innovation ecosystem. It will also serve as a firm hand on the wheel, creating backstops when regulations and market signals need adjustments to stay on course.

The system maximizes customer choice

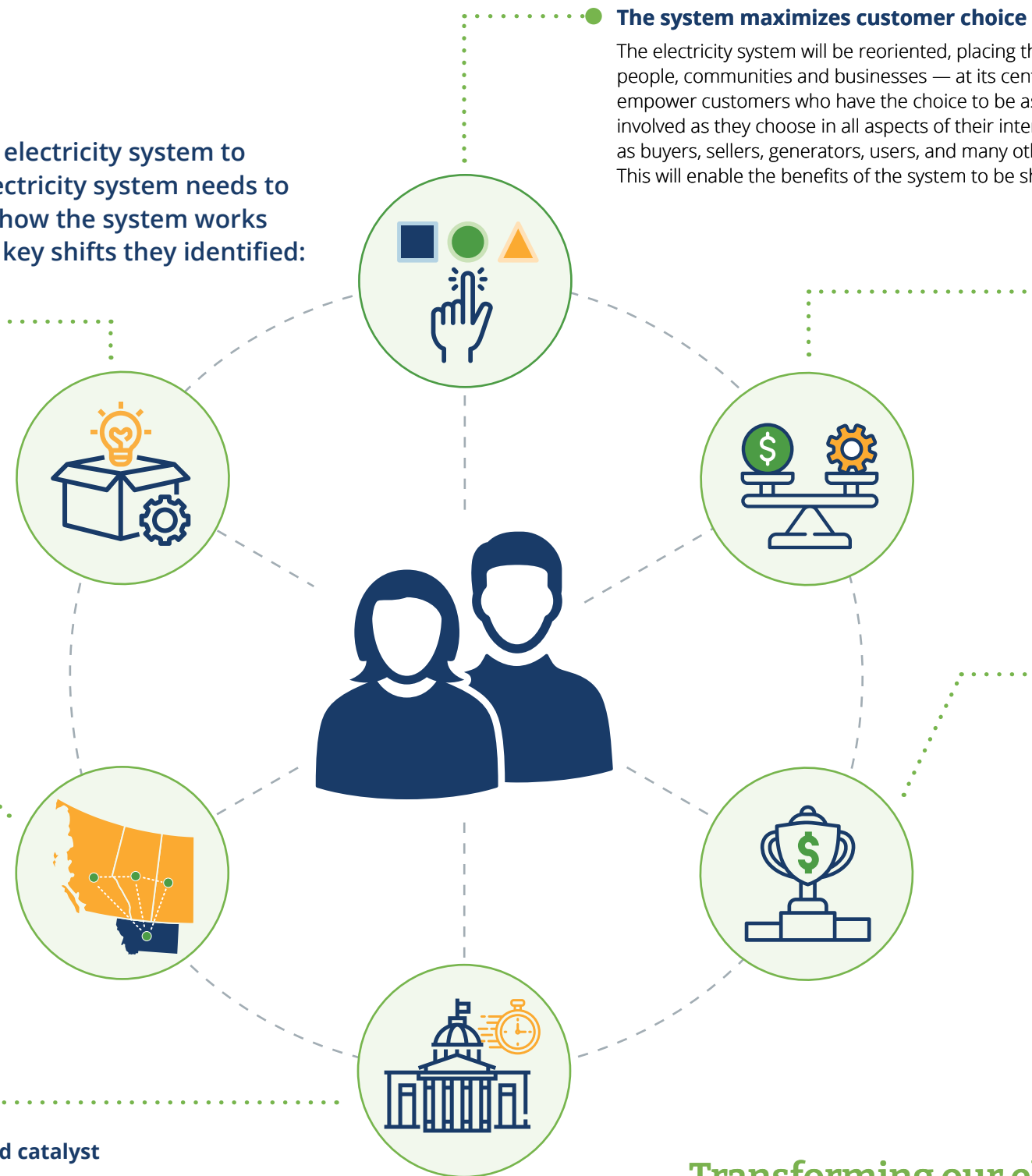
The electricity system will be reoriented, placing the needs of customers — people, communities and businesses — at its centre. By doing this, it will empower customers who have the choice to be as deeply involved or as little involved as they choose in all aspects of their interaction with electricity — 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, communities, and businesses will enjoy predictable and equitable electricity rates as a result of healthy competition. 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. Better supports will be put in place to help people, businesses, and communities make informed choices about meeting their electricity needs through clear, straightforward, and empathetic communications and simplified processes.

The system enhances economic opportunity, investor confidence and job creation

Affordable, abundant, emissions-free electricity will be critical to helping Alberta maintain and strengthen its competitive advantages as a destination for industry and jobs. It will help enhance the competitiveness of existing Alberta-based companies in a global market, as well as attracting desirable new business and industries to Alberta and the net-new jobs they bring with them. It will enhance the province's ability to continue to attract both domestic and international investors seeking stable, long-term returns in the rapidly growing net-zero economy, and stimulate job creation in new growth industries. It has the potential to create new export revenue, as well as being a key component of strategies seeking to maximize the longevity of Alberta's vast hydrocarbon resources, enabling companies to reduce emissions while leveraging existing expertise and infrastructure.



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.

The path to get us there

With new technologies emerging at record pace, the paths that we might take to reach net-zero are still emerging. Retaining optionality at this stage will help avoid prematurely constraining opportunity and encourage innovation. To ensure the best possible outcomes for all customers, regardless of geographic location, income or position in the system; to inform our choices at forks in the road; and to keep us focused on what's important; we support an electricity system characterized by the following principles:

PRINCIPLES OF ALBERTA'S NET-ZERO ELECTRICITY SYSTEM

Foundational

- Safe
- Reliable



Optimize First

- Approach transforming the system by first leveraging what we have already built. By optimizing the use of existing technology, infrastructure and other solutions, we can build critical early momentum for the shift, maximize the value of existing investments, and avoid stranding infrastructure.
- Prompt [the whole system](#) to invest in energy conservation and efficiency, as well as in education that empowers substantial, widespread energy literacy and results in greater customer agency over electricity choices.
- Integrate customer-side management tools and other technologies, resources, or processes to create the conditions to ensure the business case is self-evident for enhancing the utilization of the built environment (e.g. through growing the community of prosumers [entities that both produce and consume electricity,] virtual power plants [VPPs,] and microgrids.)



Diversify Solutions

- Remove barriers that lock in a 'one-size-fits-all' approach to solutions, choices, and supports, enabling a more robust and resilient system.
- Create the conditions that allow for more decentralized electricity solutions informed by and tailored to customers, that reduce emissions and meet individual, community, and business needs at the lowest possible cost to customers.
- Encourage the whole system to utilize diverse solutions to meet the bulk and distributed systems' operational needs.



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 distribution of benefits.
- Provide greater resources to support rural municipalities, as well as Indigenous and non-Indigenous communities 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 we might support them to move out of it, not continuing to penalize those who find themselves in that situation



Embrace Environmental Integrity

- Build an electricity system that serves individuals, 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.



Adapt to Change

- Advocate for adopting and implementing policies and regulations that keep pace with changing realities and provide clear boundaries and goals without unduly constraining potential solutions.
- 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, communities and businesses to electricity supply.

How you can take part

Share your thoughts

Share your opinions, thoughts or reactions to the vision.

Scan the QR Code or click the link.



[Take the survey](#)

Help spread the word

Share this vision with your networks on social media.



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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 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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The Energy Futures Lab is a part of a partnership fostering a strong and inclusive economy that thrives within nature's limits.
The Natural Step Canada | Smart Prosperity Institute | Canada Plastics Pact | Circular Economy Leadership Canada |
Nature Investment Hub | Canadian Alliance for Net-Zero Agrifood