

# Barriers Identification & Prioritization

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*Workshop 3 Pre-Read Package*

**April 26, 2024**



Prepared by  
**Maureen Kolla, TL Duque, Julie Bunker, Keren Perla, Sarah Brooks, Ali Niazi and Ashley Meller**

Convened By



Phase 1 & 2 Supported By





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# Energy Futures Lab

*Unlocking the power of people and communities to accelerate an innovative response to Canada's greatest energy challenges*

The Energy Futures Lab is an award-winning Alberta-based not-for-profit organization that brings together a network of leading thinkers and innovators from across the energy system. It was established to enable collaboration around the polarized subject of energy transition and tackle some of its most pressing issues. Since 2015, the Lab has worked with over 20,000 stakeholders, Rights and Title Holders from across Canada to collaboratively accelerate progress towards [our vision of an equitable and net-zero energy future](#), drawing on diverse perspectives to find innovative and enduring solutions to complex, system-level challenges.

*Together we must uncover the solutions that will power Alberta's bright future*

A new reality is already upon us, demanding a response from a system out of sync. **Provincially-mandated engagement on specific topics is underway** by the Alberta Electricity System Operator (AESO), Alberta Utility Commission (AUC), and Market Surveillance Administrator (MSA). While these engagements are important to address current challenges, we believe **applying the Energy Futures Lab's unique social innovation lens**, inclusive of recognizing the rights held by Indigenous communities, to the Alberta electricity challenge can develop the systems-level understanding and vision required for the future system. **Our work will provide a holistic point of view** on what the future needs to enable and a coordinated approach to test potential solutions.

*The Natural Step Canada Partnership*

The Energy Futures Lab is a part of a partnership fostering a strong and inclusive economy that thrives within nature's limits.

The [Energy Futures Lab](#) operates as an independent initiative of The Natural Step Canada, alongside the [Canada Plastics Pact](#), [Circular Economy Leadership Canada](#), [PLACE Centre](#), and the [Canadian Alliance for Net-Zero Agri-food \(CANZA\)](#).

These multi stakeholder and Indigenous rights and title holders coalitions foster collective action on critical issues informed by evidence and research, including from the [Smart Prosperity Institute's](#) research network and national policy think tank.



# About Alberta's Electricity Future

*How might Alberta's electricity system collaboratively orient and organize itself to meet the needs of the net-zero economy of the future?*

Unlocking Canada's progress towards net-zero will require a big evolution of our electricity systems. This evolution is also key to preparing our technologies and industries to compete in emerging growth opportunities and rapidly decarbonizing global markets.

Draft federal regulations requiring Canada's electricity grid to have net-zero emissions by 2035 were released in August 2023. While misgivings exist about the feasibility of the proposed time frame, **there is growing agreement about the importance of preparing the grid to overcome the twin challenges of increasing consumer demand and reducing emissions.**

Given individual provinces' unique context, needs, and readiness to dig into the challenge, **there is no one-size-fits-all solution.** And while there is no shortage of ideas about how to carve a path forward, the reality is that individual system actors cannot make this journey alone. For Alberta's grid to enable future prosperity and support the province as it grows and diversifies its economy, **alignment and coordination are essential.**

Formally launched in March 2023, Alberta's Electricity Future (AEF) is a three-year initiative that will collaborate and partner with traditional electricity voices like industry and government while focusing on historically underrepresented groups such as youth and Indigenous rights holders to align on collective actions that will enable the whole system to progress in a way that ensures reliable, safe, and affordable electricity for Albertans.

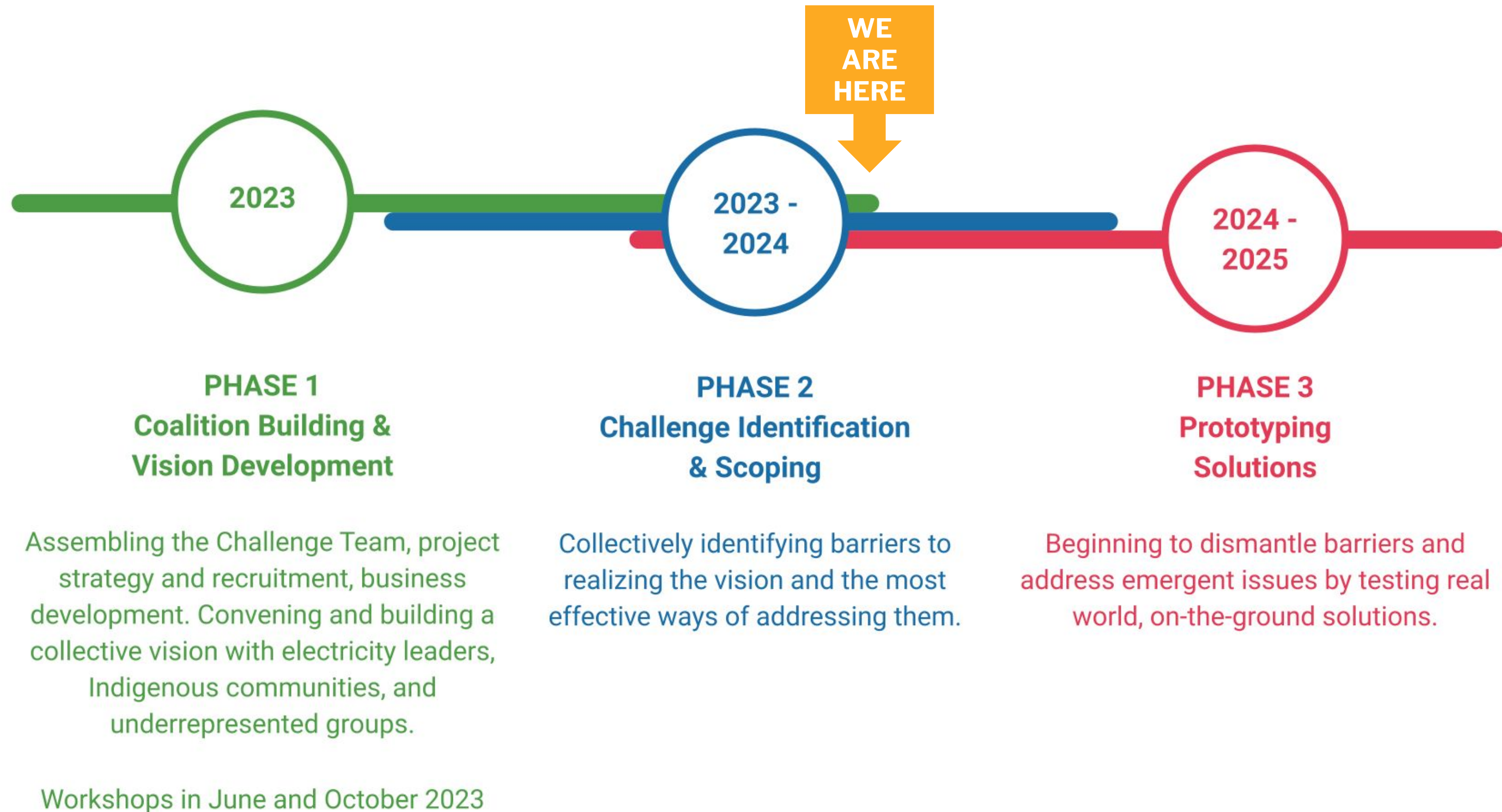
Trust and collaboration are central to shaping the future of Alberta's electricity system. **Aligned leaders can be a powerful voice for influencing the future of electricity and driving actions that deliver the most effective outcomes.**

**We ask that you bring every aspect of you to these workshops.** Your professional experience, your personal passions, and your hopes for future generations.

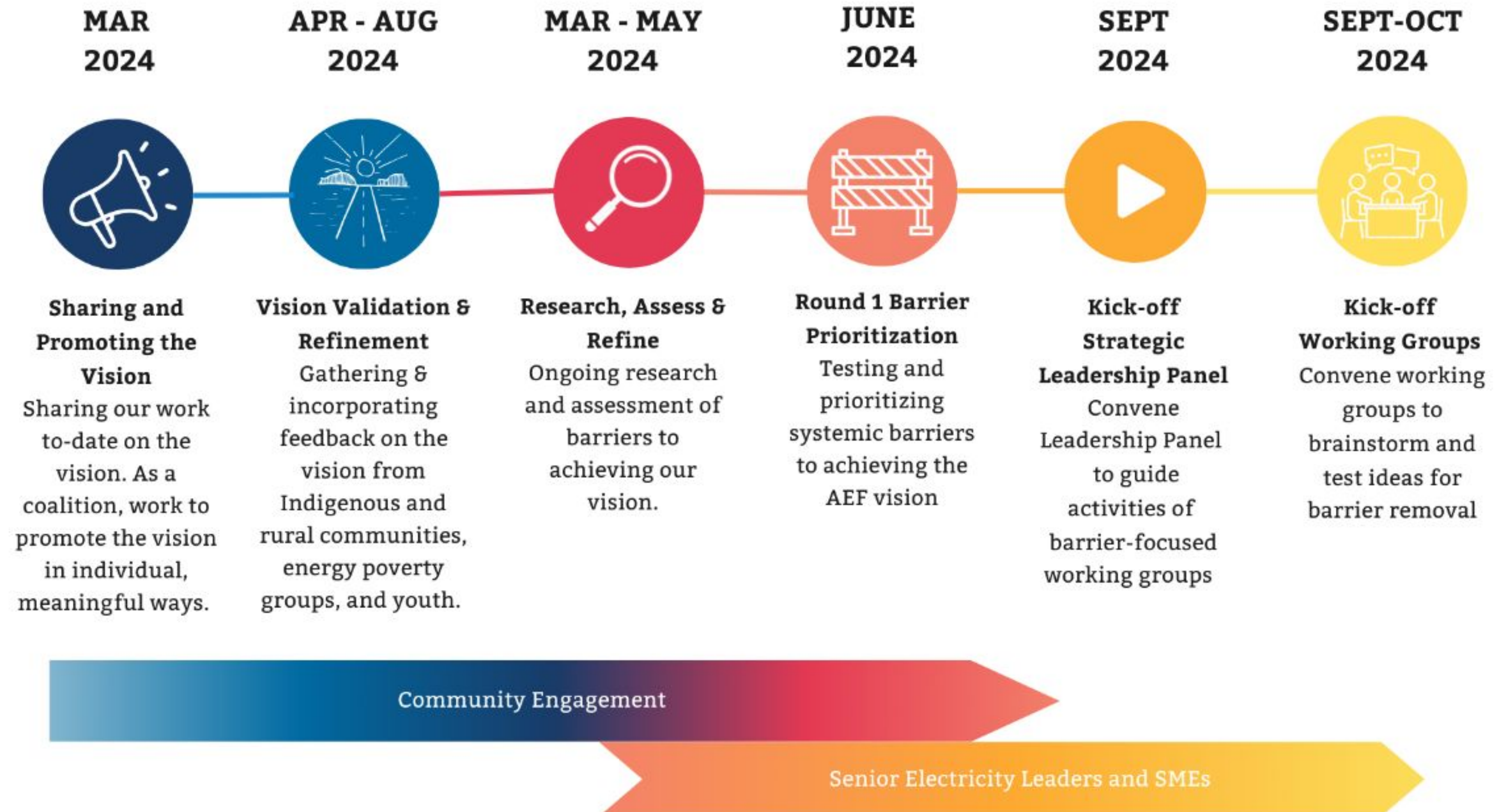
We ask that you **seek to understand others** in the room, by listening first and responding with curiosity. This is what the work requires of us, as the future cannot be built without **bringing together diverse views and finding common ground.**



# Our Approach



# Our Approach: Phase 2 & 3 - Barriers Identification and Solutioning





# Our Approach to Challenge Identification



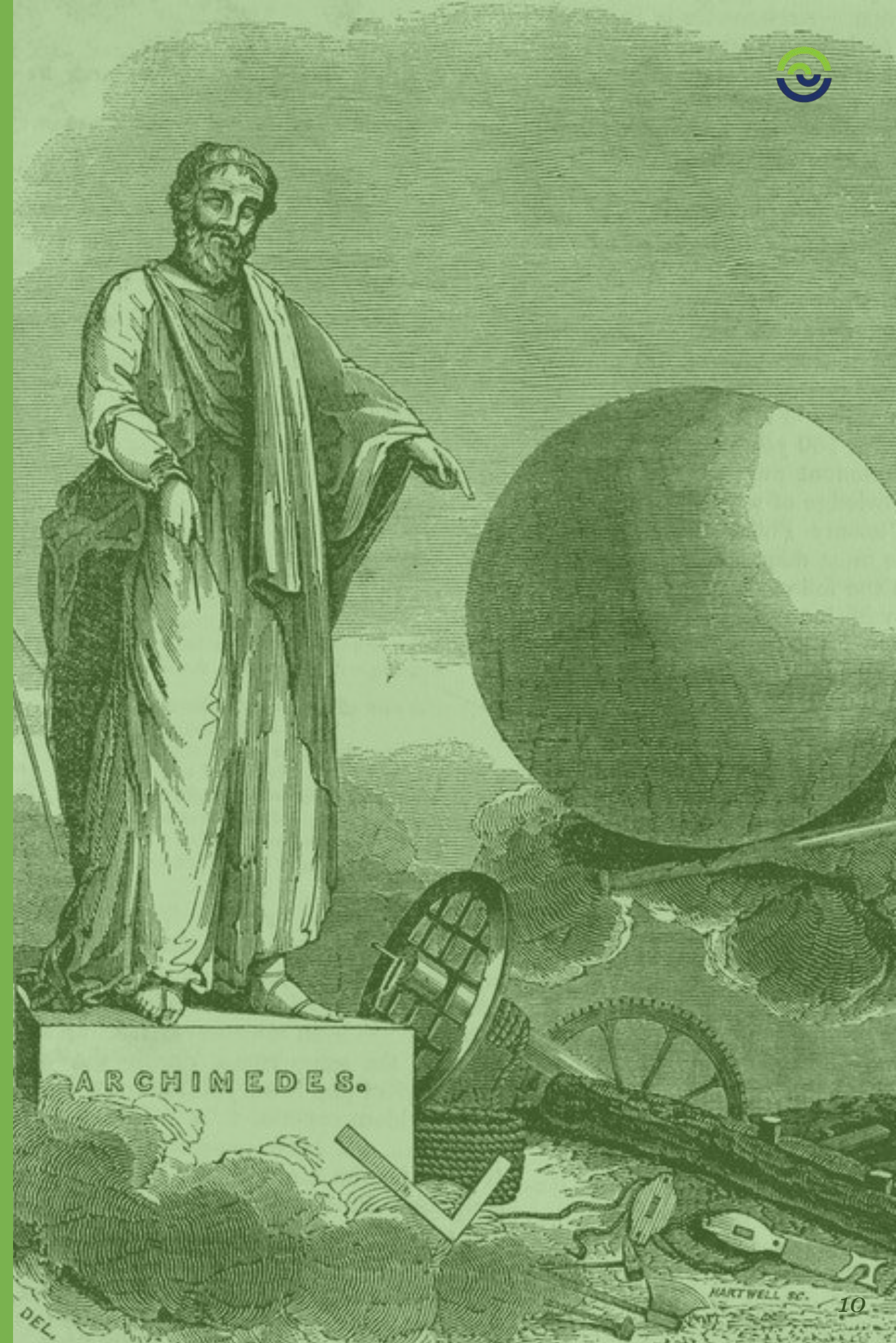
# Introduction

The purpose of this document is to provide participants and supporters of Alberta's Electricity Future (AEF) with an overview of how we have arrived at the draft challenge statements (which you'll receive separately.) These challenge statements point to areas where we might take collective action towards realizing **our vision** and unlock a net-zero electricity system in Alberta. This document clarifies what is meant by “large-scale systems change” and offers a framework for thinking about how it might be best achieved.

*The framework we offer taps into the strategies and approaches advanced by social innovation labs; the experience of the Energy Futures Lab in nudging complex systems toward new futures; and advice and consultation with experts in the electricity sector. It is a resource - not an answer - for understanding how, and which, strategic interventions can create lasting, positive effects that advance our collective vision.*



# 1. Our Theory of Leverage



# Our Theory of Leverage: Getting to Root Causes

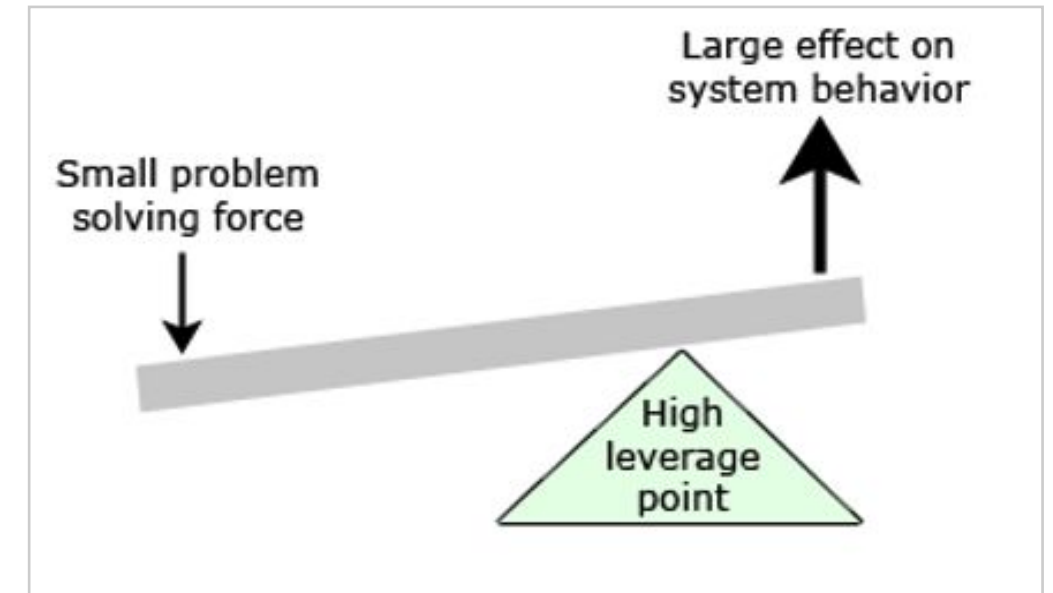
AEF is based on the view that players across the electricity system are responding to new factors that fall outside (and sometimes run contrary to) the parameters of what Alberta's electricity system was originally designed to do.

These factors include changes and challenges to:

- the electricity generation mix
- market behaviors
- system reliability
- customer expectations

These factors are 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.

**Intervening to achieve outsize effects that move us toward our vision is key to making effective progress. Ideally, we want to intervene in a small way that has a high leverage point in order to have a large, positive effect.**





# Our Theory of Leverage: Getting to Root Causes

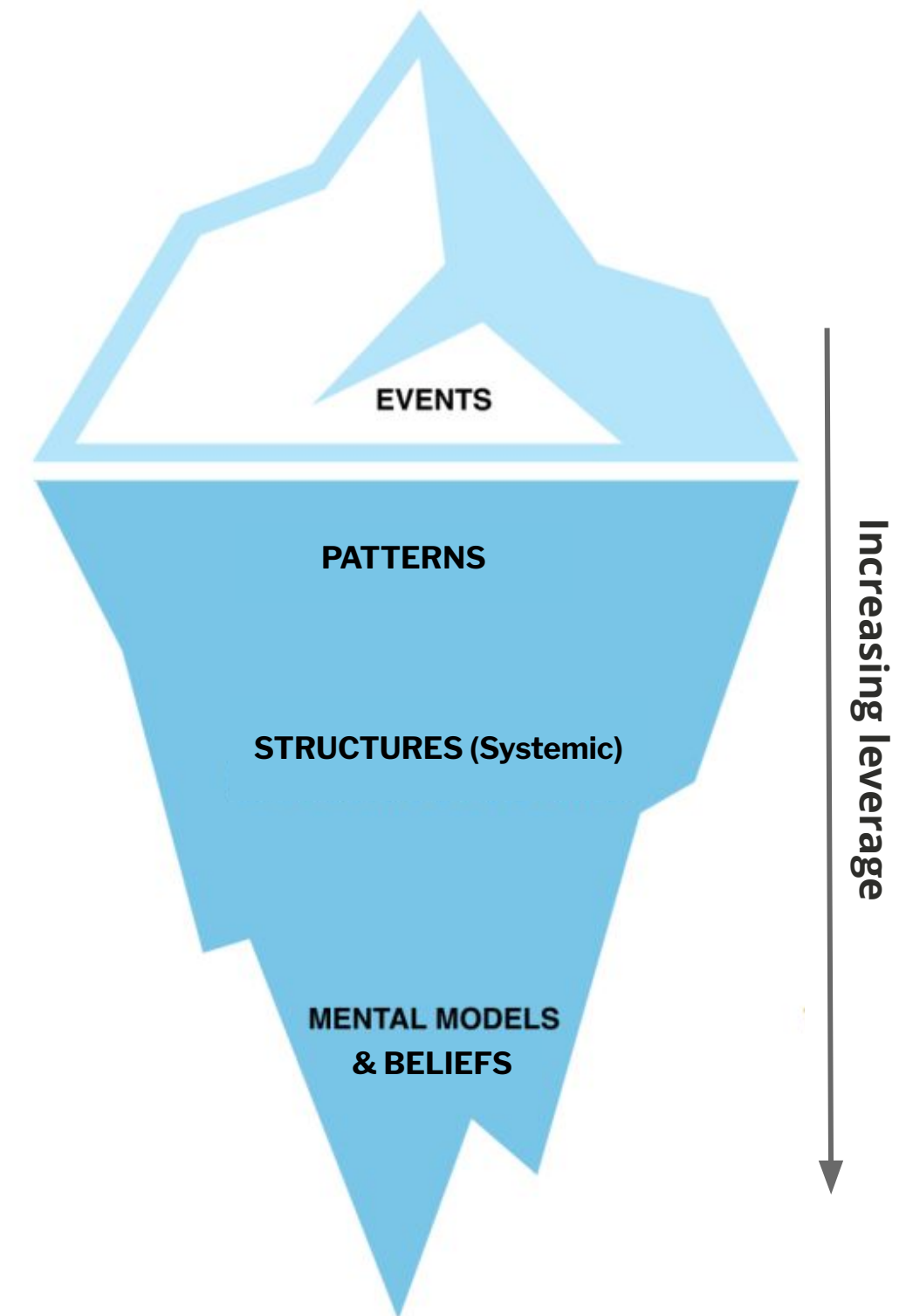
To scale our interventions and achieve our collective vision, we must gain “**leverage**” by **identifying powerful opportunities to reframe, solve for or remove barriers in a way that will enable organizations and individuals to make meaningful progress toward transformative change.**

To be able to do this, we must first distinguish between “**surface-level or visible barriers**” and “**systemic barriers**”.

**SURFACE-LEVEL BARRIERS** are a specific obstacle experienced by actors across the system that hinders change. In thinking of an issue as an iceberg, surface-level barriers is the top part of the iceberg, that sits above the water line.

**SYSTEMIC BARRIERS** are a feature, structure, or mindset that is a root cause of one or more of these surface-level issues. Typically there are multiple surface-level barriers that are related to a single systemic barrier. In the iceberg analogy, the systemic barriers are the much larger part that sits below the surface, acting as ballast holding the surface-level issues in place.

This metaphor helps us to see that, while it seems most obvious to address the visible issues, it is the systemic, ‘below the waterline’ issues that must be comprehensively addressed in order to effect lasting change at the surface level.





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# Our Theory of Leverage: Getting to Root Causes

Addressing systemic barriers is more effective and can create sustained effects when compared to addressing surface-level barriers, because it is more likely to remedy the root cause of a symptom(s). An example; at the surface-level barrier, most residential customers in Alberta are paying an industry-accepted percentage for their electricity relative to their household income. However, the lowest income customers are paying a higher percentage and as such, experiencing a higher energy burden. At first, the issue looks to be one of affordability for a specific cohort of individuals and may be dealt with through targeted low income support programs. Yet this solution alone cannot get at what is at the root and perpetuating this - that most consumers in Alberta cannot independently affect their electricity costs in any material way. Understanding and addressing only surface level barriers such as this may even lead to unintended consequences, e.g. locking people into reliance on government assistance over the long term. In this way, new problems can be created by solving old ones. Instead, we must take a systems approach and address root causes, finding novel and productive ways for customers to affect their electricity bills.

*To affect change and design solutions, we must also understand how systemic barriers interact or influence each other. This is of particular importance at later stages of the AEF initiative when we begin identifying promising solutions. At this point it will be important to determine the degree to which solutions to address distinct barriers should be tightly or loosely linked; consider cascading effects; and anticipate unintended consequences of advancing any particular solution or solution set. This will be revisited in Phase 3 of AEF.*

## 2. Our Methodology for Identifying Systemic Barriers

To examine barriers at the intersection of the current electricity system and the AEF vision, a range of approaches were utilized, building on a survey of relevant literature and using systems-thinking approaches. The output is identification of **10 key barriers**, written as challenge statements, that identify major points of leverage that, if unlocked, will allow for significant progress. Our method for arriving at these barriers is described in the following section.





# Literature and Jurisdictional Review

## *Barrier research and documentation review*

To identify and analyze the barriers to achieving a net-zero electricity grid in Alberta, 64 publicly available sources were reviewed, including reports from academic institutions, government bodies, industry groups, and non-governmental organizations, with most reports published in the last three years (see Appendix 1 for further detail).

Each report was selected based on specific criteria, including its relevance to grid decarbonization and modernization, the credibility of the source, the comprehensiveness of the analysis, and its applicability to Alberta's unique economic and geographical context.

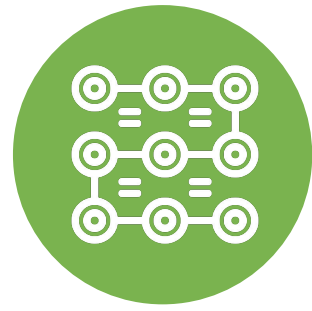
Data extraction involved reviewing each report to identify and record specific barriers, which were then categorized into the following themes:

1. **Policy and Regulation:** how governmental policies and regulations can impede progress towards a decarbonized and modernized grid.
2. **Technological and Infrastructural:** technological and technical aspects and the infrastructural changes required to support a decarbonized and modernized grid.
3. **Economic and Financial:** economic implications, investment requirements, and financial mechanisms essential for the transition.
4. **Development and Execution:** challenges associated with planning, managing, and executing projects aimed at achieving a decarbonized and modernized electricity grid.

5. **Environmental and Natural Resource:** environmental impacts and natural resource constraints that could affect the transition.
6. **Social and Equity:** social implications, public acceptance, and equity concerns related to the shift towards a sustainable energy future.

To ensure the reliability and validity of our analysis, findings were cross-referenced with similar jurisdictions and the data was verified through multiple sources when possible. Barriers were distinguished between those that were specific to Alberta, those that were Canada-wide, and those observed in other jurisdictions with similar goals. In the end, 61 unique barriers were identified.



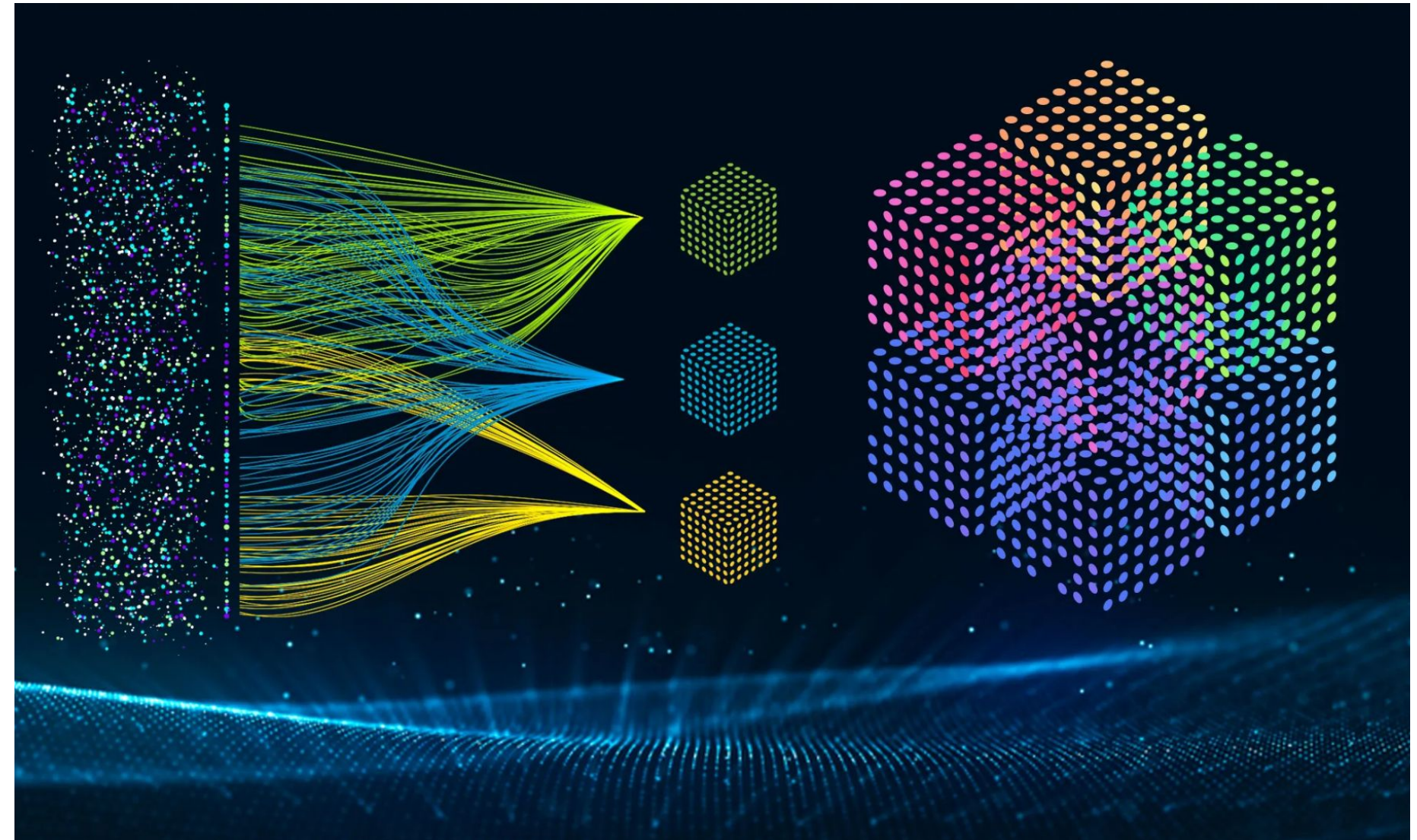


# Pattern Recognition

## *Clustering and looking for relationships between barriers*

With 61 unique barriers identified through the literature and jurisdictional review, barriers were interpreted and clustered based on their relationship to one another to surface themes and hone in on root causes. These are potential areas of high leverage for change; what we call “systemic barriers”.

**The initial set of systemic barriers was 17.**



Source: <https://ubiai.tools/pattern-recognition-overview-and-applications/>





# Impact Assessment

*Classifying barriers by potential for impact vs. anticipated effort required to address and the possibility of impact at a system level*

Once the 17 systemic barriers were identified, the potential impact of addressing a systemic barrier was assessed against the level of effort and ability anticipated to be required to influence this barrier.

This assessment was used to determine which barriers have the most potential to create change. To support a more nuanced analysis, this included consideration of upcoming policy windows and the application of the following systems-oriented criteria:

<b>Leverage</b>	To what extent will progress on this issue address deeper systemic issues related to a vision-aligned transition?
<b>Cascading</b>	To what extent will progress on this issue generate positive cascading effects in the transition?
<b>Momentum</b>	To what extent is there positive momentum on this issue in Alberta and beyond?
<b>Policy Windows</b>	To what extent are there current/upcoming (primarily Provincial) policy windows that AEF stakeholders and rights holders might be able to influence?
<b>Profile</b>	To what extent is this a high-profile issue across stakeholders and rights holders that can hold their attention for a long-term process of change?



## Delphi Prioritization

*Prioritizing barriers with systems change expertise experience (Delphi method)*

In addition to the impact assessment, we undertook several rounds of prioritization based on our expertise (individually and as a group) to determine which ‘influenceable’ systemic barriers should be prioritized to advance the AEF vision.

Individual assessments were aggregated and shared with the broader AEF team to deliberate together and create the space for consensus.

Together with the above criteria screening, an initial set of 10 key barriers emerged as the most urgent and possible areas for collective action.



## Interdependence Mapping

*Assessing relationships between systemic barriers and determining interdependencies*

With the 10 key barriers identified, an initial assessment of the relationship between systemic barriers was completed to understand the degree to which solutions for systemic barriers can be addressed independently or if they need to be managed and supported as mutually reinforcing.

This mapping will help inform the prototyping and actions undertaken by AEF and its working groups in the coming months and will be revisited after the barriers are refined.



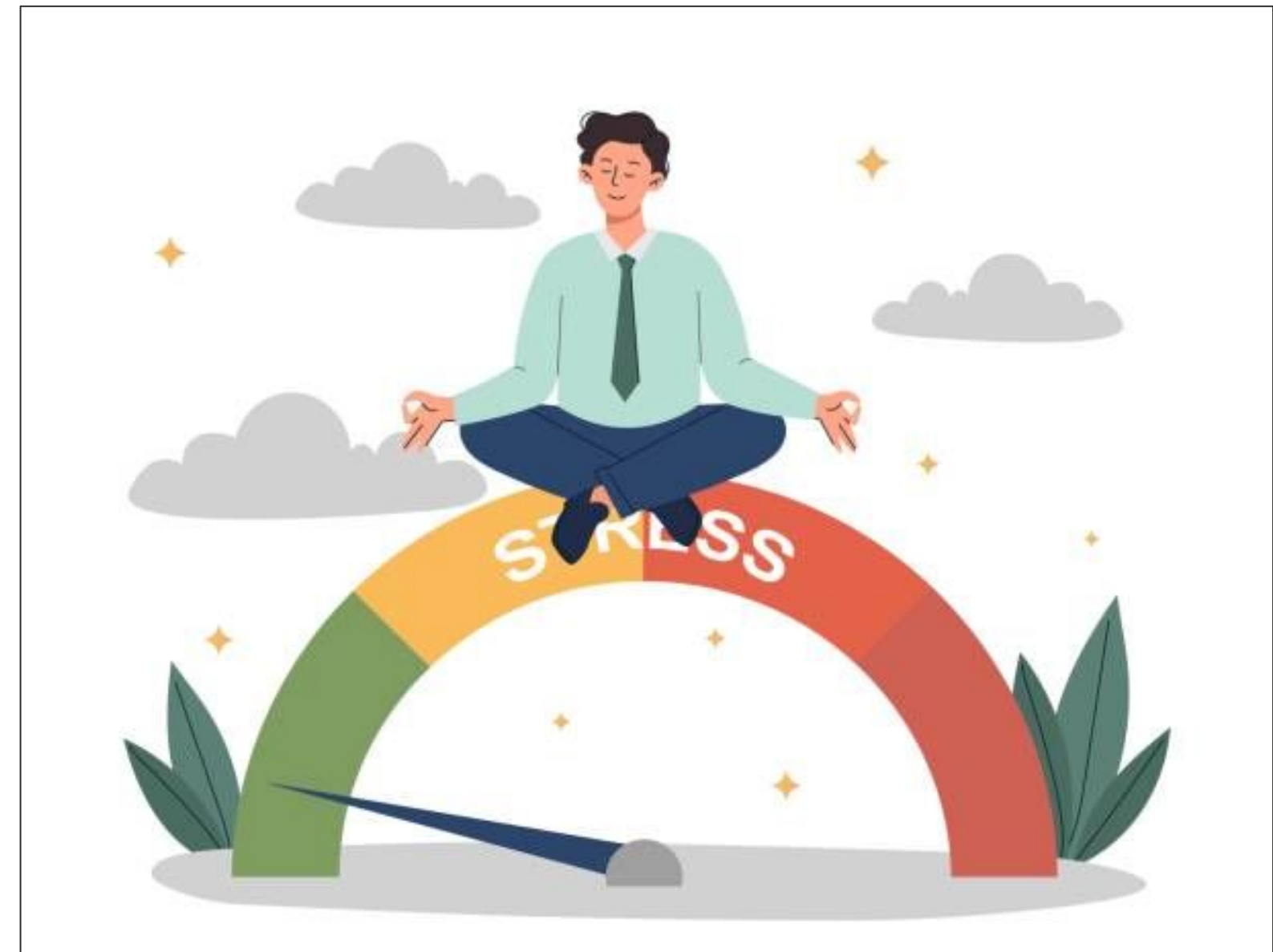
## Stress Test and Validate

*Testing the resonance of the top 10 amongst stakeholders and determining where additional leadership may be needed*

The 10 key barriers were written up as challenge statements for review and refinement with the AEF coalition, other experts and those with lived experience in these barriers.

While the 10 challenge statements are critical to advancing the AEF vision, the AEF team can not lead efforts on all of them.

Stress-testing will also help prioritize which barriers AEF is best positioned to lead on and those for which others' leadership is needed.



Source: <https://www.istockphoto.com/illustrations/reduce-stress>

# 10 Areas for Collective Action

The 10 Challenge Statements listed on the next page are designed to be the starting point for collective refinement. Initial co-refinement will begin with the AEF Barriers workshop. Please see individual Challenge Statements (attached as a separate document) for further description.

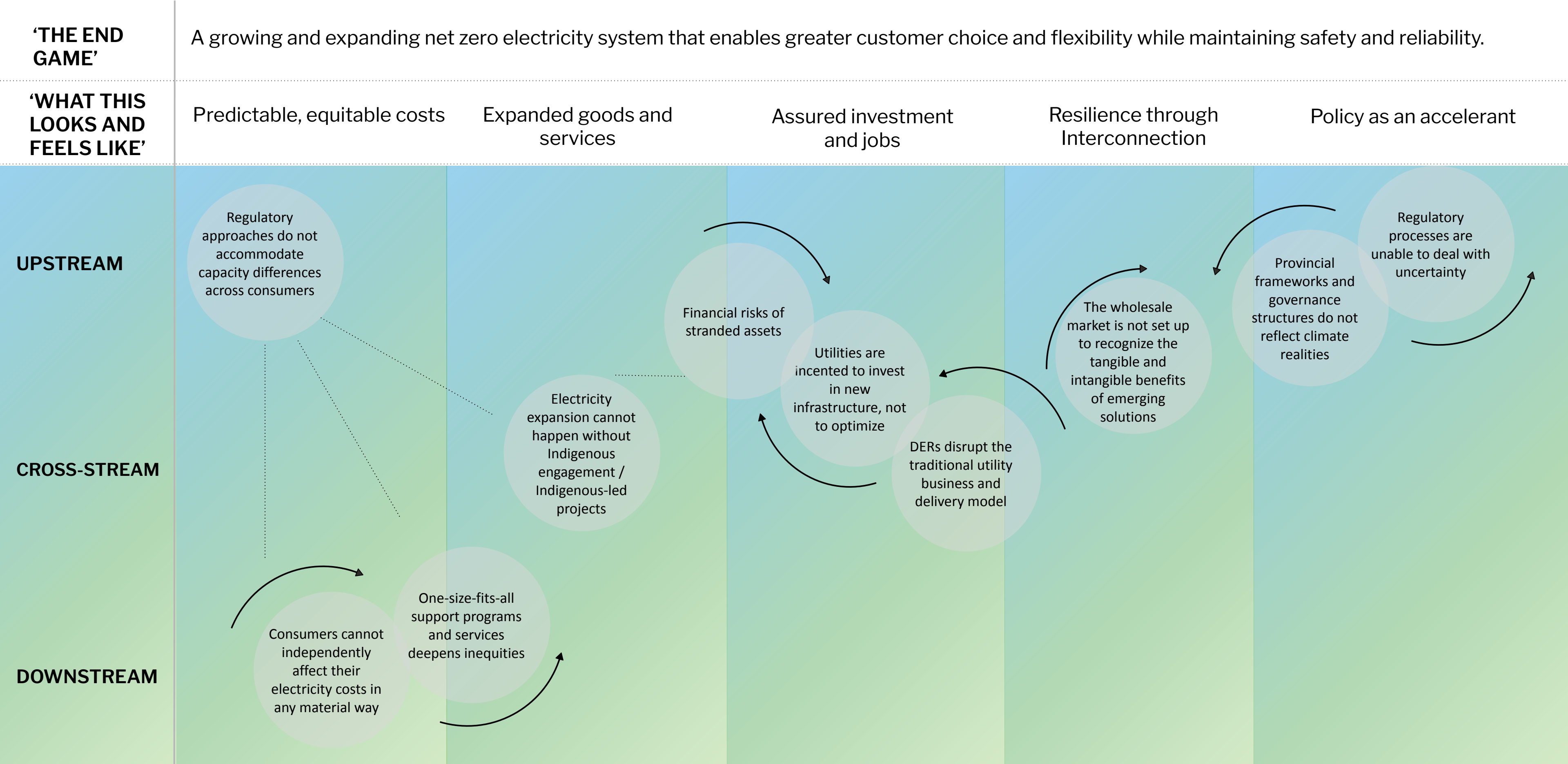


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## 10 Areas for Collective Action - A Starting Point

1. Utilities are incented to invest in new infrastructure, not to optimize
2. The wholesale market is not set up to recognize the tangible and intangible benefits of emerging solutions
3. Electricity expansion cannot happen without Indigenous engagement / Indigenous-led projects
4. Provincial frameworks and governance structures do not reflect climate realities
5. Financial risks of stranded assets
6. One-size-fits-all support programs and services deepens inequities
7. Regulatory approaches do not accommodate capacity differences across consumers
8. Consumers cannot independently affect their electricity costs in any material way
9. Distributed energy resources (DERs) disrupt the traditional utility business and delivery model
10. Regulatory processes are unable to deal with uncertainty

# An Initial Map of the Top 10 Challenges



A photograph of several wind turbines in a field at dawn or dusk. The sky is a mix of blue and orange, and there is a layer of mist or fog on the ground. The turbines are silhouetted against the sky.

**“Our greatest obstacles present the most opportunities.”**

~Anonymous





# Appendix 1: Table of Literature Review Types



Type of Document	Number of Sources
Federal/provincial/state/municipal government documents and reports published by organizations affiliated to the governments (e.g.,GOA, AESO, AUC, NRCanAN, City of Calgary, IEA, NYSERDA, etc)	21
Consultancy/think-tank/association reports, column articles, and academic literature (e.g., Pembina Institute, First Nations Major Projects Coalition, Transition Accelerator, Canada West Foundation, Electricity Canada, Daily Oil Bulletin, Business Council of Canada, etc)	43
<b>Total number of sources reviewed</b>	64

Research Focus	Purpose	Number of Sources
Literature review	Review Alberta and Canadian decarbonization reports to pull out identified barriers	28
Jurisdictional review of leading/ comparative jurisdiction	Featured jurisdiction: Western Australia, UK, Germany, NY, and Texas. Review reports in leading jurisdictions to determine if any key barriers were missed.	26
Net zero cost considerations	Review net-zero reports focused on the cost to transition to better understand the costs from a system perspective.	10
<b>Total number of sources reviewed</b>		64
<b>Total number of unique barriers identified</b>		61