

**APATHY
IS BORING**

Waste

**NET ZERO
& YOU *[th]*
PROGRAM**

*Province Specific
Research: Alberta*

INTRODUCTION



Climate change has deeply affected many young people in Canada and left us with many unresolved feelings and questions about the path to a sustainable and environmentally conscious future. As youth who've chosen to educate ourselves on climate change and Net Zero, we can serve as leaders of climate action and justice and talk about why repairing the planet matters to us. As part of the Net Zero program at Apathy is Boring, this report analyzes Alberta's initiatives and progress toward achieving net-zero objectives at both provincial and municipal levels. Tailored to any young person in AB who's interested in climate action and Net Zero, this report serves as both a knowledge base and a tool to help you connect storytelling to the action that's being taken (and not yet taken) in your community, and figure out what you want your climate story to say.

As you work through the information below, **think about how the research intersects with your personal experiences of climate change.** Consider the gaps in knowledge, strategy and action and how your story may be used to bridge these.

We hope that this report will empower you with knowledge, inspire your storytelling, and encourage you to participate in advancing net-zero objectives in your community.

AB PROVINCIAL NET-ZERO POLICIES

CLIMATE CHANGE AND EMISSIONS MANAGEMENT ACT (CCEMA)

Launched in 2003, the CCEMA sought to reduce emissions in Alberta by 50% below 1990 levels by 2020.¹ (The province did not meet this goal - Alberta's carbon emissions have increased by 9%, and oil and gas emissions by nearly 40%, since 2005.²)

Facilities that emitted more than 100,000 tonnes of GHGs a year were required to reduce their emissions intensity by 12% below their 2003-2005 emissions average.

New companies were required to reduce their emissions intensity by 2% per year after the third year of operation.

1 *Climate Change and Emissions Management Act*. Government of Alberta, SA 2003, C-16.7, <https://www.canlii.org/en/ab/laws/astat/sa-2003-c-c-16.7/latest/sa-2003-c-c-16.7.html>.

2 Weber, Bob. "New Report Suggests Alberta's Emissions Reduction Plan Made Little Progress in First Year." *CTV News Edmonton*, 19 Apr. 2024, <https://edmonton.ctvnews.ca/new-report-suggests-alberta-s-emissions-reduction-plan-made-little-progress-in-first-year-1.6854710>.



Companies had three ways to meet their emissions reductions requirements:

- 1.** Making operating improvements (improved technology or elimination of sources of emissions)
- 2.** Buying an Alberta-based credit (from a company that has more than met its 12% reduction target or from a smaller company that has voluntarily reduced emissions)
 - Intended to motivate companies that can reduce emissions most cheaply via the opportunity to sell credits
- 3.** Contributing to the Climate Change and Emissions Management Fund (CCEMF) — \$15 penalty for every tonne of GHG emissions over their target, as set by the 2007 Specified Gas Emitters Regulation
 - Funds directed to the creation of new technologies/other strategic projects to reduce provincial emissions

ALBERTA'S CLIMATE LEADERSHIP PLAN (CLP)

Launched in 2015,³ the CLP aimed to reduce methane emissions in the oil and gas sector by 45% below 2014 levels by 2025 and cap oil sands emissions.⁴

3 "Alberta's Climate Leadership Plan: Progressive climate policy." *Government of Alberta*, Sept. 2018, p. 1, <https://open.alberta.ca/dataset/428e517b-3bd4-4d3d-b197-b0233c85647e/resource/f23497a3-6208-41d6-84da-c44416e1676b/download/investorconfidencclimateleadershipplanfactsheet.pdf>.

4 "Climate Leadership Plan: Fiscal Plan." *Government of Alberta*, 2017, p. 59, https://www.ccacoalition.org/sites/default/files/resources//2017_alberta-fiscal-plan.pdf.

The CLP sought to do so via four pillars:⁵

- 1.** Capping oil sands emissions at 100 megatonnes per year: forecasted that total emissions from the industry would fall to 254 megatonnes of CO₂ equivalent in 2030, compared to reported emissions of 274 megatonnes of CO₂ equivalent in 2015.⁶
- 2.** Putting a price on GHG emissions: carbon pricing increased to \$30 per tonne, to be adjusted to keep pace with prices and growth. Revenue generated from this levy was to be reinvested into green infrastructure, energy efficiency, renewable energy, bioenergy, and innovation.⁷
- 3.** Ending pollution from coal-fired electricity and developing more renewable energy:⁸
 - \$10 billion investment in renewable energy assets via Alberta's Renewable Electricity Program to reach the 30% target of renewable electricity by 2030 - *involved 3 rounds:*
 - Constructing 4 wind farms across southern AB providing 600 megawatts of electricity
 - Companies partnering with Indigenous communities to produce up to 300 megawatts of renewable power, with each bid including minimum 25% Indigenous equity ownership
 - Adding another 400 megawatts of renewable electricity
 - Coal phase-out to encourage coal-to-gas conversions and creating new demand for Alberta gas:
 - Transition to more renewable energy and natural gas generation by 2030
 - Three principles shaping the coal phase-out: maintaining reliability; providing reasonable stability in prices to consumers and business; and ensuring that capital is not unnecessarily stranded.
 - Two-thirds of coal-generated electricity will be replaced by renewables (primarily wind power) while natural gas generation will continue to provide firm base-load reliability
 - Renewable energy sources to comprise up to 30% of Alberta's electricity production by 2030
- 4.** Reducing methane emissions from industry by 45% below 2004 levels by 2025: supporting the industry in efforts to reduce methane emissions by helping to drive down costs and increase access to global markets⁹



EMISSIONS MANAGEMENT AND CLIMATE RESILIENCE ACT (EMCRA)



*The CCEMA was renamed the EMCRA in January of 2020, which reflected its shift in focus towards enhancing resilience to climate impacts alongside emissions management. The Climate Change and Emissions Management Fund (CCEMF) was also renamed the Technology Innovation and Emissions Reductions (TIER) Fund (see more below), to emphasize the adoption of technologies for emissions reduction and climate resilience. **EMCRA's key updates from CCEMA include:**¹⁰*

- Expanded regulatory scope beyond carbon dioxide to include a wider range of emissions (e.g., methane)
- Grants government authority to create and enforce regulations that set emission limits, establish reporting requirements, and outline mitigation measures for specified gasses
- Establishes stricter reporting requirements for emitters and regulatory oversight to enforce these requirements
- Establishes an environmental management framework to allow AB to adapt regulations in response to evolving science and technology

5 Ibid.

6 Ibid.

7 Ibid.

8 Ibid:

9 Ibid.

10 "Emissions Management and Climate Resilience Act." Government of Alberta, SA 2003, E-7.8, 1 April 2023, https://kings-printer.alberta.ca/1266.cfm?page=e07p8.cfm&leg_type=Acts&isbncln=9780779842940.

TECHNOLOGY INNOVATION AND EMISSIONS REDUCTION (TIER) REGULATION

*The CLP was repealed in 2019 “to help remove the financial burden on families and job creators”¹¹ (though Alberta remains subject to the CLP’s 2030 coal phase-out¹²) and replaced in 2020 by the TIER Regulation, which implements Alberta’s industrial carbon pricing and emissions trading system to reduce emissions from large industrial emitters (emitting 100k or more tonnes of CO₂/year OR importing >10k hydrogen/year) and keep the industry competitive¹³ “without interference from Ottawa”¹⁴ - i.e., to meet the criteria to avoid the regulation of the federal output-based carbon pricing system. Regulated facilities must provide annual compliance reports (with those emitting >1 million tonnes/year also providing a yearly forecasting report) and have **4 options in meeting the emissions reduction requirements:**¹⁵*

1.

Reducing their emissions

2.

Using emissions performance credits

(issued to facilities for surpassing their emissions reduction requirements¹⁶)

3.

Using emissions offset credits

(generated by projects that have voluntarily reduced their greenhouse gas emissions for the Alberta Emission Offset System¹⁷)

4.

Paying into the TIER Fund

11 “Carbon Tax Repeal.” *Government of Alberta*, 4 June 2024, <https://www.alberta.ca/carbon-tax-repeal>.

12 Beugin, Dale & Brendan Frank. “Gear Shift: Alberta’s Climate Policies Poised for Big Changes.” *Canada’s Ecofiscal Commission*, 22 May 2019, <https://ecofiscal.ca/2019/05/22/gear-shift-alberta/>. <?> “Climate Technology Task Force.” *Government of Alberta*, 30 May 2024, <https://www.alberta.ca/climate-technology-task-force>; “Technology Innovation and Emissions Reduction Regulation.” *Government of Alberta*, 30 May 2024, <https://www.alberta.ca/technology-innovation-and-emissions-reduction-regulation>.

13 “Technology Innovation and Emissions Reduction System.” *Government of Alberta*, 30 May 2024, <https://www.alberta.ca/technology-innovation-and-emissions-reduction-system>.

14 *Alberta Carbon Registries*. <https://alberta.csaregistries.ca/#:~:text=Alberta%20Emissions%20Performance%20Credit%20Registry,equal%20to%20one%20EPC%20credit>.

15 “Tier Fact Sheet: Alberta Emission Offset System.” *Government of Alberta*, July 2023, https://www.alberta.ca/system/files/custom_downloaded_images/epa-tier-fact-sheet-alberta-emission-offset-system-2023-07-24.pdf.

16 *Alberta Carbon Registries*. <https://alberta.csaregistries.ca/#:~:text=Alberta%20Emissions%20Performance%20Credit%20Registry,equal%20to%20one%20EPC%20credit>.

17 “Tier Fact Sheet: Alberta Emission Offset System.” *Government of Alberta*, July 2023, https://www.alberta.ca/system/files/custom_downloaded_images/epa-tier-fact-sheet-alberta-emission-offset-system-2023-07-24.pdf.

EMISSIONS REDUCTION AND ENERGY DEVELOPMENT PLAN (EREDP)

*Launched in 2023, EREDP outlines actions, opportunities, and new commitments to reduce emissions and maintain energy security. EREDP “includes an aspiration to achieve a carbon neutral economy by 2050, and to do so without compromising affordable, reliable and secure energy.”¹⁸ **The Plan seeks to do so via by 8 approaches:***

1. Practical and achievable pathways:

focusing on the development and use of innovation and technology, via the TIER fund, to reduce emissions in industrial sectors¹⁹

2. Delivering Alberta energy to the world while reducing emissions:

“Canada is uniquely positioned to help improve world energy security and lower global emissions by shipping our LNG abroad, displacing higher emitting fuels like coal for generating electricity. Through alignment of our industrial credit standards and policy, Alberta may be able to support other jurisdictions such as British Columbia to achieve its goal of cleanest LNG worldwide through our CCUS [carbon capture, utilization, and storage] expertise and more suitable geology for long-term carbon storage.”²⁰

3. Affordability and reliability:

recognizing cost of living crisis and “that all Canadians depend on a reliable supply of electricity and heat to live comfortably and safely in Canada’s sometimes harsh climate.”²¹

4. Energy security:

“Alberta energy resources can and should displace energy from less democratic global energy producers.”²²

5. Partnership with Indigenous communities and organizations:

seeks to design competitive processes that respond to Indigenous issues and include Indigenous perspectives to maximize economic and social development in Indigenous communities, and support Indigenous communities to participate and invest in natural resource, agriculture, telecommunications, and transportation projects²³

18 “Emissions Reduction and Energy Development Plan.” *Government of Alberta*, <https://www.alberta.ca/emissions-reduction-and-energy-development-plan>.

19 “Alberta emissions reduction and energy development plan.” *Government of Alberta*, April 2023, p. 7, <https://open.alberta.ca/dataset/7483e660-cd1a-4ded-a09d-82112c2fc6e7/resource/75eec73f-8ba9-40cc-b7f4-cdf335a1bd30/download/epa-emissions-reduction-and-energy-development-plan.pdf>.

20 Ibid.

21 Ibid.

22 Ibid.

23 Ibid: 8.

6. Industrial policy and systems approach:

the technological innovation AB seeks to implement in its industrial sectors requires:²⁴

- All levels of government to be responsive to industry and investor requirements, especially for de-risking and policy certainty”
- Collaboration between AB, industries, Indigenous communities and organizations, labour, finance, etc.
- A supporting policy framework from the federal government that encourages investment and enables Canada and Alberta to compete with programs like the Inflation Reduction Act in the United States, which offers companies over \$350 billion in subsidies and tax credits to clean technology companies that shift their operations to the United States.”

7. Sustainable finance:

seeks to ensure that policy and funding support are in place to finance decarbonization and attract related investments²⁵

- “As the national framework for sustainable finance is developed, it is critical that natural gas is considered a transition fuel and that traditional energy sectors are able to access transitional finance.”

8. Conservation, protection, and enhancing nature-based solutions:

collaborating with landowners, Indigenous communities, etc. regarding integrated land-use planning, protection, and conservation²⁶



²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

AB MUNICIPAL INITIATIVES

Calgary

CALGARY CLIMATE STRATEGY - PATHWAYS TO 2050:

Launched in 2022, the Calgary Climate Strategy seeks to reduce GHG emissions by 60% below 2005 levels by 2030 and reach net-zero by 2050.²⁷ The Strategy seeks to do so via its Mitigation Plan, which focuses on improving energy use and reducing GHG emissions by preventing the release of emissions and removing emissions from the atmosphere.²⁸

27 "Calgary Climate Strategy: Pathways to 2050." *City of Calgary*, June 2022, p. 16, <https://www.calgary.ca/content/dam/www/uep/esm/documents/esm-documents/climate-strategy-pathways-to-2050.pdf>.

28 Ibid: 13.

NET ZERO HOMES AND BUILDINGS²⁹

New buildings:

- **By 2030:** all new buildings are built to a net zero standard and contain 40% less embodied emissions from construction
- **By 2050:** all new buildings are built to a net zero standard, including embodied carbon

Existing buildings:

- **By 2030:** achieve
 - a. an annual conversion rate to net zero emission homes of 3% or 19,000 dwellings, and
 - b. an annual deep retrofit rate in the commercial and industrial sector of 5% or 317 structures
- **By 2050:** all buildings achieve a net zero emissions standard

Energy poverty:

- **By 2030:** the number of Calgary households experiencing energy poverty is reduced by half (to 32,000 households)
- **By 2050:** energy poverty is eliminated in Calgary

ZERO CARBON ENERGY TRANSITION³⁰

Zero carbon energy:

- **By 2030:** 10% of total electricity used in Calgary is generated within city boundaries from renewable sources, and 15% of residential electricity demand is offset by rooftop solar installations
- **By 2050:** 40% of total electricity used in Calgary is generated within city boundaries from renewable sources, and 60% of residential electricity demand is offset by rooftop solar installations

Provincial energy supply:

- **By 2030:** 100% of coal-generated electricity is retired by 2024, and the Alberta grid emissions factor is less than 0.3 tCO₂/Megawatt hour (MWh)
- **By 2050:** provincial electricity supply is generated from 100% zero carbon energy sources

²⁹ Ibid: 19.

³⁰ Ibid.



ZERO CARBON NEIGHBORHOODS³¹

Zero emissions vehicles:

- **By 2030:** 100% of all new livery transport passenger vehicles licensed to operate in Calgary are zero-emissions vehicles, and 100% of new residential construction is built to an EV-ready standard; 10% EV-ready requirement for new commercial construction, with 90% conduit/partial readiness
- **By 2050:** 100% of all vehicles registered in Calgary are zero emissions vehicles

Zero emissions transportation modes:

- **By 2030:** 40% of all trips are taken by walking, wheeling or transit, and 45% of people live within 400 meters (m) of the primary transit network
- **By 2050:** 60% of all trips are taken by walking or wheeling or transit; 95% of Calgarians live within 2000 m of a dedicated transit facility (e.g. LRT, MAX bus service); Completion of 5A Network implementation; and 25% reduction in daily vehicle kilometers traveled (VKT) per capita

Zero emissions city design:

- **By 2030:** all new communities are built to a net zero community standard
- **By 2050:** TBD

³¹ Ibid.

³² Ibid: 20.

CONSUMPTION AND WASTE³²

Waste reduction:

- **By 2030:** reduce 50% of food and other organic waste in the garbage, compared to 2019
- **By 2050:** TBD – to align with updates to the United Nations Sustainable Development Goals and the development of a Calgary consumption-based GHG inventory

Waste diversion:

- **By 2030:** 70% of waste diverted from landfills by 2025
- **By 2050:** TBD

CARBON REMOVAL³³

Natural infrastructure:

- **By 2030:** restore 20% of Calgary's open space (in 2015) to increase biodiversity by 2025; achieve 10% urban tree canopy coverage by 2030; and increase the habitat condition rating category for 20% of priority 1 and 2 natural environment parks to perform to their full ecological potential by 2035
- **By 2050:** achieve 16% urban tree canopy coverage

Carbon negative technologies:

- **By 2050:** 100% of remaining community-wide emissions are offset by carbon negative technologies



33 Ibid.

2023-2026 CLIMATE IMPLEMENTATION PLAN:

*Focusing on implementing the priorities of the Calgary Climate Strategy in 2023-2026, **Calgary's Climate Implementation Plan** centers on 8 areas of focus:³⁴*

1. *City design and development*

- Focusing land use planning to prioritize net-zero and climate-resilient city design: measured by numbers of climate-resilient infrastructure projects, multi-community plans using Community Climate Risk Profiles to inform planning policy, and new buildings built to a net-zero ready and/or net-zero standards³⁵
- Building new City-owned infrastructure to be climate resilient: measured by number of staff trained and external professionals/students receiving information from City experts; climate resilience measures integrated into infrastructure design; and city standards, guidelines, and policies updated to incorporate climate resilience³⁶

2. *Buildings and homes*

- Reducing climate risk to existing City-owned infrastructure: measured by number of existing City-owned/managed assets that are screened for climate risk, and the number of retrofit projects that incorporate climate resilience measures; and economic climate risk analysis is completed for City buildings to monitor the projected cost of climate risk to City-owned facilities³⁷

- Building new buildings to a net-zero standard: measured by numbers of pilot projects initiated for net-zero carbon facilities, commercial buildings disclosing energy performance, and new net-zero buildings built in Calgary, tracked through the energy label³⁸
- Retrofitting existing buildings to a net-zero standard: measured by numbers of buildings disclosing energy performance, Clean Energy Improvement Program applicants, buildings with improved energy performance in Calgary, and deep energy retrofit pilot projects initiated³⁹
- Developing climate-resilient private homes and buildings: measured by tracking the numbers of units of climate-resilient affordable housing built/retrofit/supported annually, people accessing the climate-resilient retrofit financing program, new builds that integrate climate resilience measures, and climate risk and resilience assessments that are completed for major private sector development permits for new projects⁴⁰

34 "Climate Implementation Plan." City of Calgary, <https://www.calgary.ca/content/www/en/home/environment/climate/implementation-plan.html>.

35 Ibid: 4.

36 Ibid: 5.

37 Ibid: 6.

38 Ibid: 7.

39 Ibid: 8.

40 Ibid: 9.

3. Energy

- Supporting local renewable energy projects: measured by percentage of corporate energy consumption from renewable sources; and numbers of buildings connected to low-carbon district energy systems, neighborhood-scale renewable energy projects, and solar panel installations⁴¹
- Supporting a clean provincial energy supply: measured by GHG emissions intensity of electricity and heating fuels⁴²

4. Mobility

- Accelerating the transition to zero-emission vehicles: measured by numbers of EV or other zero-emissions vehicles registered in Calgary, public and residential EV chargers, and medium and heavy-duty low-carbon vehicle pilots initiated; and percentage of corporate fleet converted to low-carbon vehicles⁴³
- Increase the mode share of net-zero or low emissions transportation modes: measured by total investment towards walking and wheeling infrastructure, length of 5A network, and city-wide mode share percentages⁴⁴

5. Waste and consumption

- Waste reduction, diversion, and methane management: measured by waste-related GHG emissions, waste generation and diversion, energy generated from landfill gas, and wastewater biogas captured⁴⁵

6. Water:

- Reducing risk from river flooding: measured by number of flood protection projects planned, underway, and completed; change in predicted annual average damages; and refined and enhanced land use planning policies and regulations with respect to flood zones⁴⁶
- Integrating climate change into stormwater management: measured by number of properties at risk of localized stormwater flooding; amount of City and development investment in planned, underway, and completed stormwater quality projects; updated Stormwater Strategy and Stormwater Management and Design Guidelines; development and implementation of a Green Stormwater Infrastructure (GSI) Plan⁴⁷
- Integrating climate change into long-term water plans: measured by the development of a drought management plan considering climate change and climate impacted watersheds; improved understanding of climate-related changes to long-term river flow, water quality, and demand; and improved water-use and water efficiency⁴⁸

7. Nature and ecology

- Integrating the benefits of natural infrastructure: integrating natural assets into corporate asset management processes and financial reporting to better manage and monitor them⁴⁹

41 Ibid: 10.

42 Ibid: 11.

43 Ibid: 12.

44 Ibid: 13.

45 Ibid: 14.

46 Ibid: 15.

47 Ibid: 16.

48 Ibid: 17.

49 Ibid: 18.

- Preserving, restoring, and building natural infrastructure: measured by improvements to the urban canopy to strive for the City target (14-20% by 2058); tracking the number and hectares of climate-resilient natural infrastructure projects supported by the centralized Climate Infrastructure Fund; and track the hectares of active restoration/ hectares of completed restoration and the average river health score across the city⁵⁰

8. People

- Supporting climate-resilient people: measured by the numbers of community representatives, community-based organizations, and community climate initiatives supported by The City; identification of community resources accessible during different climate events; and number of community climate resilience programs supported⁵¹
- Enhancing community climate resilience: completion of community climate risk profiles for all Calgary communities; development of a toolkit of climate adaptation and disaster risk reduction measures⁵²

- Developing food resilience: development of a Food Resilience Plan to reduce climate change vulnerabilities of Calgary food systems⁵³
- Emergency preparedness and business and service continuity: integrating disaster risk reduction principles into City strategies, policies, plans, and protocols⁵⁴
- Supporting Calgarians impacted by energy poverty: engaging with those impacted by energy poverty and integrating feedback into developing a strategy to alleviate energy poverty; development of community investment programs to support those experiencing energy poverty⁵⁵
- Education and outreach: measured by numbers of outreach and education programs delivered annually, Calgarians attending outreach and educational programs, partnering organizations supporting climate actions, climate ambassadors and communities that are represented in the program, and community-based organizations supported by The City for climate adaptation and mitigation action⁵⁶

50 Ibid: 19.

51 Ibid: 20.

52 Ibid: 21.

53 Ibid: 22.

54 Ibid: 23.

55 Ibid: 24.

56 Ibid: 25.

Edmonton

EDMONTON'S COMMUNITY ENERGY TRANSITION STRATEGY & ACTION PLAN:

Launched in 2021, Edmonton's Community Energy Transition seeks to reduce community-based GHG emissions by 35% below 2005 levels by 2025; reduce community-based GHG emissions by 50% and energy consumption by 35% per person below 2005 levels, and generate 10% of Edmonton's electricity locally, by 2030; and reach net-zero by 2050.⁵⁷ The Strategy seeks to do so via 4 pathways:

57 "Edmonton's Community Energy Transition Strategy & Action Plan." *City of Edmonton*, 29 April 2021, p. 16, "<https://www.edmonton.ca/sites/default/files/public-files/assets/PDF/EnergyTransitionStrategy2021-04-20.pdf?cb=1719528427>."

1. Renewable and resilient energy transition⁵⁸

- **2020-2030:** implementing policy changes enabling access to renewable energy; attracting and incubating next generation energy companies; planning and establishing district energy network; expanding the Solar Incentive Rebate Program; advancing regional incentives for renewable energy systems supply chains, infrastructure, investment, and technological innovation; implementing renewable energy systems for civic operations and municipal buildings; maximizing renewable energy production from waste and expanding organics capture and processing; developing waste reduction and materials recovery roadmaps
- **2020-2040:** increasing local renewable installations and decarbonizing of the grid
- **2030-2040:** expanding district energy network
- 2030-2050: increasing manufacturing, distribution, and construction of next generation energy companies
- 2040-2050: completed and decarbonized energy network; 100% emission neutral electricity and heating

2. Emission neutral buildings⁵⁹

- **2020-2030:** establishing an industry advisory group for recommendations for advancing the emission neutral building pathway; providing performance-based incentives for new construction to build above Building Code; developing a Cost Sharing Database for information on emission neutral building costs; accelerating and expanding building retrofit programs; developing electronic access to energy consumption data for all buildings; piloting a home renovation program and income-based programs to address energy poverty; forecasting, tracking, and reporting on energy poverty; setting an emission neutral building standard for new City buildings; retrofitting municipal buildings; reporting and disclosing City buildings' energy performance
- **2020-2040:** increasingly stringent energy codes in alignment with federal and provincial governments; urgently increase home renovation rate
- **2040-2050:** over 350,000 residential buildings and 11 million square feet of commercial space retrofitted for energy savings

58 Ibid: 17.

59 Ibid: 19.



3. Low carbon city and transportation⁶⁰

- **2020-2030:** completing build out of a zero emission charging network; completing build out of active transportation network; implementing policy changes to enable sustainable development; updating Design and Construction Standards with sustainability elements; creating district plans enabling low carbon and climate resilient communities; developing a process for considering emissions targets as part of land development application reviews; identifying and planning potential car-free/low emissions zones with active transportation improvements; supporting installation of public EV charging infrastructure and providing EV charging incentives; identifying parking management strategies and other opportunities to enable better access by active, transit, and shared modes of transportation; developing a circular economy strategy; implementing the redesign of the transit system, focusing on increasing ridership through increased reliability and service improvements; transitioning bus fleet and mass transit technologies to zero emissions technology; transitioning City vehicles and equipment to zero emissions technologies; replacing street lighting and traffic signal technology through LED retrofit and replacement programs
- **2020-2040:** development and redevelopment that creates 15 minute communities
- **2030-2040:** increasing zero emissions vehicles; increasing trips made by transit and active transportation
- **2040-2050:** carbon neutral city district

4. Nature based solutions and carbon capture⁶¹

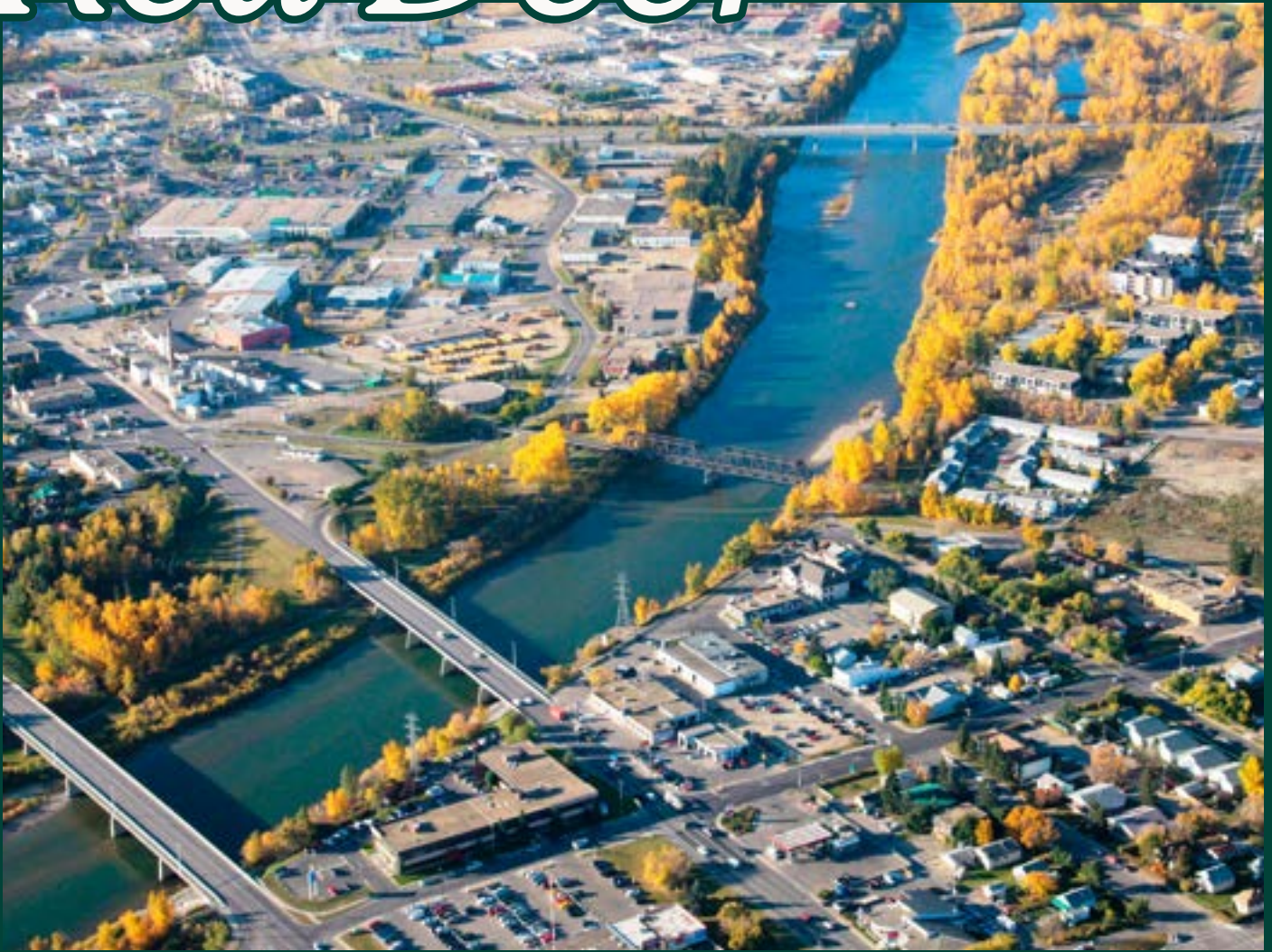
- **2020-2030:** protecting and restoring significant ecosystems; expanding green infrastructure (e.g. naturalized and restoration areas); conserving and restoring key carbon sequestration ecosystems; developing a conservation offset program; establishing a nature-based solutions framework and program; conducting a natural asset and infrastructure inventory and valuation assessment
- **2030-2040:** an additional 2 million trees planted
- **2030-2050:** city of Edmonton becomes an emission neutral corporation
- **2040-2050:** achieving net zero per person GHG emissions



60 Ibid: 21.

61 Ibid: 23.

Red Deer



RED DEER ENVIRONMENTAL MASTER PLAN:

Launched in 2019, Red Deer's Environmental Master Plan seeks to reduce corporate GHG emissions by 50% below 2010 levels, and avoid more than a 10% increase in community GHG emissions from 2010 levels, by 2035.⁶² The Plan seeks to do so via 6 focus areas:

62 "Environmental Master Plan." City of Red Deer, 3 June 2019, p. 18, <https://www.reddeer.ca/media/reddeerca/city-services/environment-and-conservation/our-corporate-initiatives/2019-Environmental-Master-Plan.pdf>.

1. Energy - by 2035:⁶³

- 25% of total electricity demand (community and city) is met by renewable energy (2010 baseline: 0.05% Community; 0.24% City)
- Total energy use does not exceed a moderate increase to 18,4000,000 gigajoules (2010 baseline: 13,941,000)

2. Ecology - by 2035:⁶⁴

- 14% of the overall urban area is protected natural area (2018 baseline: 8.59% protected)
- 50% of grass areas are managed for pests with non-chemical measures (2018 baseline: 35% of grass areas maintained using non-chemical integrated pest management)
- 95% of trees are considered suitable for Red Deer's urban environment and adapted to regional conditions (2017 baseline: 83% of tree species are suitable)
- No single species represents more than 10% of the total tree population; no genus more than 20%; and no family more than 30% (2017 baseline: 2 species represent more than 10% of the tree population; 1 genus represents more than 20% of the tree population; 1 family represents more than 30% of the tree population)

3. Community design - by 2035:⁶⁵

- Length of bicycle and pedestrian routes are 148.4 meters per hectare of urban development (2018 baseline: 125.3 m/ha)
- 1069 liters of fuel consumed per person (2009 baseline: 1257 L / person)
- Maintaining emissions levels attributed to transportation modes at or below 2017 levels (21% of all GHG emissions attributed to transportation modes)
- 31 trips per capita taken on Red Deer Transit (2016 baseline: 27 trips/capita)
- 563 square meters of urban development per person (2011 baseline: 740.8 square meters per person)
- 1029 community garden plots with 4488 residents benefiting from produce (2017 baseline: 466 plots; 1791 residents benefiting from garden produce)

4. Air - by 2035:⁶⁶

- Maintaining clean air as defined by the Canadian Ambient Air Quality Standards (CAAQS) by not exceeding yellow air quality management levels
- Reducing corporate GHG emissions by 50% from 2010 baseline
- No more than 10% increase in community GHG emissions from 2010 baseline

63 Ibid: 13.

64 Ibid: 14-15.

65 Ibid: 16-17.

66 Ibid: 18.

67 Ibid: 12.

5. *Waste:*⁶⁷

- By 2023: 500 kg in overall solid waste disposal per capita (2011 baseline: 812 kg/capita)
- By 2023: 400 kg in residential garbage collected curbside per household per year (2009 baseline: 641 kg / residential curbside program account)
- By 2035: 50% of waste diverted from landfill (2009 baseline: 10% of waste diverted)

6. *Water - by 2035:*⁶⁸

- 30% reduction in potable water consumption from 2009 baseline
- Max. 7% of total water use attributed to losses (2015 baseline: 15% of total water use attributed to losses)
- Maintaining and lowering concentrations of water quality parameters, based on the Red Deer River Watershed Alliance Blueprint Integrated Watershed Management Plan water quality objectives



⁶⁷ Ibid: 12.

⁶⁸ Ibid: 11.

ORGANIZATIONS WORKING ON NET-ZERO IN AB



PEMBINA INSTITUTE:

think tank and charity that actively engages with local governments and industry stakeholders, advocating for renewable energy policies. Their programs focus on buildings, remote communities, oil and gas, equitable energy transition, electricity, and transportation.⁶⁹

QUEST CANADA:

charity supporting Canadian communities in the transition to net zero. Their Net-Zero Communities Accelerator (NCA) Program's Prairies Cohort includes 6 communities from Alberta, and provides them with the support and necessary services, tools, and knowledge to guide them in developing and implementing their Climate Action Plans and initiatives.⁷⁰

EMISSIONS REDUCTION ALBERTA (ERA):

corporation investing in renewable energy technologies, capacity building, training, and retrofit projects to reduce GHG emissions and grow Alberta's economy.⁷¹

GREEN CALGARY:

Since 1978, Green Calgary has been a leading urban environmental charity supporting Calgarians in living a more sustainable life; helping them take effective environmental action in their homes, work places, schools, and communities. The nonprofit has worked with tens of thousands of Calgarians in leading a greener lifestyle and working together to ensure a healthy city and ultimately a healthy planet.

CALGARY CLIMATE HUB:

non-partisan, non-profit, volunteer-led organization raising awareness on and advocating for meaningful local action on climate change in Calgary. Their current campaigns include the Clean Electricity Transition (CET) Campaign, Action Transportation (5A) Network Campaign, and Housing Affordability & Climate Resilience (HACR) Campaign.⁷²

EDMONTON CLIMATE HUB:

volunteer-led non-profit organization raising awareness on and advocating for effective local, cooperative action on climate change. They seek to influence policymakers to accelerate the transition to net-zero and share data on local GHG outputs.⁷³

69 "Our Approach." *Pembina Institute*, <https://www.pembina.org/our-approach>.

70 "Net-Zero Communities Accelerator Prairies Cohort." *QUEST Canada*, 12 Oct. 2023, <https://questcanada.org/ncaprairiescohort/>.

71 "About ERA." *Emissions Reduction Alberta*, <https://www.eralberta.ca/about-era/>.

72 "Campaigns." *Calgary Climate Hub*, <https://www.calgaryclimatehub.ca/campaigns>.

73 *Edmonton Climate Hub*, <https://www.edmontonclimatehub.ca/#>.

UNIVERSITY OF ALBERTA'S CANADIAN NET-ZERO ENERGY SOLUTIONS (CANZES):

research and innovation project collaborating with academic, industry, government, and community partners to develop, test, and commercialize renewable energy solutions. The project focuses on 5 research areas to reduce emissions: hydrogen; carbon capture, utilization, and storage (CCUS); critical minerals; resilient electrical grids for sustainable energy and EVs; and land and water reclamation.⁷⁴

UNIVERSITY OF ALBERTA'S FUTURE ENERGY SYSTEMS:

multidisciplinary research project investigating the development of both renewable and non-renewable energy technologies and their possible consequences. Their focus areas include developing hydrocarbons responsibly, improving environmental performance, enabling sustainability, and system-wide enablers.⁷⁵

IRON AND EARTH:

organization working at the intersection of fossil fuel industry, environmental action, and climate justice that seeks to empower a Just Transition to renewable energy that secures the livelihoods of workers and enables community-driven climate solutions.⁷⁶ Their initiatives include Community Talks, which seeks to foster conversations to devise strategies for a community-led energy transition, and the Prosperous Transition Campaign, an Indigenous-led research project currently focusing on the impact of renewable energy technologies in First Nations communities. They also have their Climate Career Portal, a digital platform listing jobs within the green energy economy.⁷⁷

ALBERTA ECOTRUST:

charity collaborating with industry, governments, and the non-profit sector to lead environmental and climate action projects in Alberta. Their Climate Innovation Fund invests in and scales up projects in Calgary and Edmonton seeking to reduce emissions, focusing on 4 key areas: Building Better or Retrofitting Wiser, Moving on Mobility, Decarbonization & Renewable Energy, and Overarching or Foundational.⁷⁸

74 "Canadian Net-Zero Energy Solutions." *University of Alberta*, <https://www.ualberta.ca/en/research/innovation/canadian-net-zero-energy-solutions.html>.

75 "Research." *University of Alberta Future Energy Systems*, <https://www.futureenergysystems.ca/research>.

76 "Who We Are." *Iron & Earth*, https://www.ironandearth.org/who_we_are.

77 "Initiatives." *Iron & Earth*, <https://www.ironandearth.org/initiatives>.

78 "Climate Innovation Fund." *Alberta Ecotrust Foundation*, <https://albertaecotrust.com/climate-innovation-fund>.

EXISTING KNOWLEDGE MOBILIZATION TOOLS IN ALBERTA ON NET-ZERO



ALBERTA CLIMATE RECORDS:

tool using Alberta's historical climate records from 1951-2017 to map climate changes and averages across Alberta and provide future projections from 2041-2070.⁷⁹

ALBERTA'S ENERGY PROFILE:

statistics and graphs displaying Alberta's energy production, transportation and trade, consumption and GHG emissions, and authorities.⁸⁰

EDMONTON'S CLIMATE CHANGE ALMANAC:

tool using historical climate data to display how Edmonton's climate has changed over time, future projections, and impacts on day-to-day life.⁸¹

CANADIAN RENEWABLE ENERGY PROJECT MAP:

mapping tool of the University of Alberta's database of renewable energy projects in Canada. The map includes a data layering feature that can be toggled on and off to show battery energy storage projects, Indigenous-owned projects, and areas of solar energy potential.⁸²

79 Alberta Climate Records. <https://albertaclimaterecords.com/>.

80 Canada Energy Regulator. *Provincial and Territorial Energy Profiles – Alberta*. 10 Sept. 2024, <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-alberta.html>.

81 *Edmonton's Climate Change Almanac*. <https://gis.edmonton.ca/portal/apps/Cascade/index.html?appid=da972b3ec996454388cb5535e538c0bc>

82 *Canadian Renewable Energy Project Map*. University of Alberta Future Energy Systems, <https://www.futureenergysystems.ca/resources/renewable-energy-projects-canada>.

CARBON COPY PODCAST:

Emissions Reduction Alberta (ERA)'s podcast discussing the technology, engineering, and economics of reducing carbon emissions in Alberta.⁸³

ALBERTA TALKS:

a project of the Alberta Environmental Network that seeks to bridge divides regarding climate change and the oil and gas industry through open and honest community conversations.⁸⁴



⁸³ *Carbon Copy*. Emissions Reduction Alberta, <https://www.eralberta.ca/carbon-copy/>

⁸⁴ *Alberta Talks*. <https://albertatalks.ca/>

GAPS IN KNOWLEDGE AND RESOURCES

- The evaluation of community-level projects' effectiveness is limited, hampering a comprehensive assessment of net-zero progress. Specific data on the qualitative and quantitative impact of various initiatives is lacking.
- Lack of adequate integration of Indigenous peoples and knowledges into climate change and net zero initiatives
 - Claims to foster collaboration with Indigenous communities have a lack of tangible steps on how this will be approached - e.g., The Emissions Reduction and Energy Development Plan (EREDP) makes such claims without a clear plan on how they will do so
 - General knowledge gap regarding Indigenous practices and expertise regarding sustainability
- "Low-carbon" solutions are frequently made falsely analogous to zero-emissions goals - while the former can be seen as a stepping stone to reaching net-zero, they are notably mentioned as an investment priority in several plans without clear delineation of their scope.
- Notable lack of opportunities for AB youth to get involved in government-funded climate action initiatives, particularly at the political level
 - Young people's record numbers in climate protests are not being translated into political participation
 - The focus on financial assistance for corporations neglects a significant portion of the population who are willing and able to contribute
- Plans delineating EV investment and uptake neglect to account for the environmental damage (clearing forests, threats to biodiversity and freshwater supplies) that may potentially be caused by extracting minerals for EV batteries and components, as well as harm to communities surrounding this mining and their reliance on potentially damaged resources such as water and crops — specifically Indigenous communities.

**APATHY
IS BORING**

NET ZERO & YOU^[th] PROGRAM

*Province Specific
Research: **Alberta***