

## Councillor Information & Communications Package

This information package is intended to support members of Council and their staff in preparing for the upcoming Strategic Session of Council on climate change.

### Strategic Session of Council on Climate Change

#### PROJECT BACKGROUND

Climate change has significant implications for our city now and in the coming decades.

The Climate Strategy, initially approved by Council in 2018, is being updated for 2022 and will be presented to Community Development Committee on May 27<sup>th</sup>, 2022, and to the Combined Meeting of Council on June 7<sup>th</sup>. To prepare Council for challenging decisions to be made regarding The City's updated Climate Strategy and Action Plans, and to enable Council to make informed decisions that further our climate goals, City Administration will be facilitating a Strategic Session of Council on climate change on April 26, 2022.

#### Why a strategic session on climate change?

The Climate Strategy 2022 update is based on national and international reporting and analyses on the implications of continued global warming, international and North American best practices on climate mitigation and climate adaptation. This strategic session on climate change will give City Administration the opportunity to share that information with Council and address the municipal implications. Municipalities are at the forefront of addressing climate change and Calgary has an important role to play in both climate adaptation and mitigation. The first part of the session will bring together six Canadian experts through two speaker panels on *Building Climate Resilience* and *The Opportunity Before Us: Transition to the Low Carbon Economy*. The second part will give Council an opportunity to think strategically about climate change solutions and decisions through a hands-on activity on *Solutions for Energy Management and Reducing Greenhouse Gas Emissions*. The day will end with a discussion about the *Roadmap to Calgary's Climate Strategy*. The six-hour session will give Council time to listen, learn, and ask critical and important questions of the national experts and Administration.

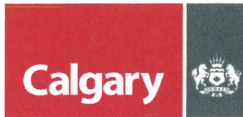
#### PROPOSED STRATEGIC SESSION AGENDA

AGENDA ITEM	SPEAKERS
Mayor Calls the Meeting to Order	<ul style="list-style-type: none"><li>Mayor Jyoti Gondek and Council</li><li>Dr. Leroy Little Bear</li></ul>
Welcome and Introduction	<ul style="list-style-type: none"><li>City Administration</li></ul>
Building Climate Resilience	<ul style="list-style-type: none"><li>City Administration</li><li>Speaker panel 1:<ul style="list-style-type: none"><li>Dr. Blair Feltmate, Intact Centre for Adaptation</li><li>Dr. Richard Boyd, All One Sky Foundation</li></ul></li></ul>
<i>The Opportunity Before Us: Transition to the Low Carbon Economy</i>	<ul style="list-style-type: none"><li>City Administration</li><li>Speaker panel 2:<ul style="list-style-type: none"><li>Dr. Sara Hastings-Simon, University of Calgary</li><li>Peter Tertzakian, ARC Energy Research Institute</li><li>Chris Brown, Calgary Economic Development</li><li>Yuill Herbert, Sustainability Solutions Group</li></ul></li></ul>
LUNCH BREAK	
Solutions for Energy Management and Greenhouse Gas Emissions Reduction (Strategic Thinking Activity)	<ul style="list-style-type: none"><li>The Delphi Group</li></ul>
A Roadmap to Calgary's Climate Strategy	<ul style="list-style-type: none"><li>City Administration</li></ul>
Closeout	<ul style="list-style-type: none"><li>Mayor Jyoti Gondek</li></ul>

#### What will Council learn at this Strategic Session?

The Strategic Session of Council on climate change will include important topics and discussions such as:

- An Indigenous perspective on climate change.
- Local and global context of climate change.
- Climate risks, hazards and impacts for Calgary.



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- Challenges and opportunities in the transition to a Low Carbon Economy.
  - Solutions for energy management and reducing greenhouse gas emissions.
  - The municipal role in addressing climate change: advocacy, capacity building, education, incentives, and regulation.
  - The City's roadmap for climate action: from 2022 to 2050.
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### **What is needed from Councillors for this Strategic Session?**

To participate in the discussion, keep an open mind, think strategically, and understand the scope and complexity of the decisions they will need to make to support Calgary's climate goals.

### **FEATURED PANELISTS**

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#### **Dr. Leroy Little Bear**

Dr. Leroy Little Bear was born on the Blood Indian Reserve (Kainai First Nation), approximately 70 km west of Lethbridge, Alberta. As one of the first Native students to complete a program of study at the University of Lethbridge, Dr. Little Bear graduated with a Bachelor of Arts Degree in 1971. He continued his education at the College of Law, University of Utah, in Salt Lake City, completing a Juris Doctor Degree in 1975. He was a founding member of Canada's first Native American Studies department. He remained at the University of Lethbridge as a researcher, faculty member and department chair until his official retirement in 1997. From January 1998 to June 1999, he served as Director of the Harvard University Native American Program. Upon his return to Canada, he was instrumental in the creation of a Bachelor of Management in First Nations Governance at the University of Lethbridge - the only program of its kind in the country. In 2003, Dr. Little Bear was awarded the prestigious National Aboriginal Achievement Award for Education, the highest honour bestowed by Canada's First Nations community. Little Bear is the recipient of honorary doctorates from the University of Lethbridge and the University of Northern British Columbia. Along with his wife, Amethyst First Rider, Little Bear brought about the historic Buffalo Treaty between First Nations on both sides of the USA-Canada border in 2014. Little Bear was inducted into the Alberta Order Excellence and the Order of Canada in 2016 and 2019, respectively.

<https://www.alberta.ca/aoe-leroy-little-bear.aspx>

<https://www.ulethbridge.ca/artsci/public-professor-series-dr-leroy-little-bear>

#### **Dr. Blair Feltmate, Head of the Intact Centre on Climate Adaptation, University of Waterloo**

Blair is the Head of the Intact Centre on Climate Adaptation, University of Waterloo. Previous positions he has held include Vice President, Sustainable Development, Bank of Montreal; Director, Sustainable Development, Ontario Power Generation; Partner, Sustainable Investment Group/YMG Capital Management. Blair has written textbooks on Sustainable Banking and Aquatic Ecology. He is on the Advisory Table, National Adaptation Strategy, Canada. He is Sustainable Finance Council member, Global Risk Institute, and he is a member of Climate Proof Canada (Insurance Bureau of Canada). Blair is Expert Member, International ISO Strategic Advisory Group, ESG. He is on the Climate Advisory Board, Minister of Environment (Ontario). He was Chair, Federal Government of Canada Expert Panel on Climate Adaptation. Blair holds a Ph.D in Theoretical and Applied Ecology (University of Toronto), Master's in Arts (Wilfrid Laurier University), Master's in Zoology (University of Toronto), and Hon. Bachelor's Biology (University of Toronto). Blair was an NSERC Postdoctoral Fellow. He is generally interviewed by the media 150 times per year on climate change/ESG related issues.

#### **Dr. Richard Boyd, Director, Economics & Research, All One Sky Foundation**

Dr. Richard Boyd is Director of Research and Economics at All One Sky Foundation, a Calgary-based charity that assists communities at the nexus of energy and climate change. Previous positions he has held include Head of Research and Analysis at Climate Change Central, Senior Environmental Economic Advisor at the UK Department for International Development, and Senior Economist, Environmental Taxes at HM Treasury. An environmental economist, over the last 30 years he has led numerous assessments of the socioeconomic impacts of climate change on human health, the built environment, and natural assets, as well as the costs and benefits of adaptation strategies to inform decision-making at all levels of government, both within Canada and internationally. He was Coordinating Lead Author of the "costs and benefits" chapter for the National Knowledge Assessment and recently completed studies of the economic risks of





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climate-related impacts for Calgary and Edmonton. He holds a Ph.D. in Economics, a M.Sc. in Project Analysis, Finance and Investment, and a B.A. (Hon.) in Economics.

### **Dr. Sara Hastings-Simon, Assistant Professor, University of Calgary**

Dr. Sara Hastings-Simon is an assistant professor in the department of physics and astronomy and school of public policy at the University of Calgary where she directs the Masters of Science in Sustainable Energy Development. She is a macro energy system researcher and her work is focused on understanding how low-carbon energy transitions happen within different sectors of the economy, and how policy responses can improve outcomes. Sara is co-founder and co-host of Energy vs Climate a webinar and podcast that explores the energy transition in Alberta, Canada, and beyond. She is also the chair of the panel for Clean Growth with the Canadian Climate Choices Institute and a member of the board of directors of Emissions Reduction Alberta and the Pembina Institute. Dr. Hastings-Simon holds a PhD in physics from the University of Geneva.

### **Peter Tertzakian, Deputy Director, ARC Energy Research Institute**

Peter Tertzakian is Deputy Director of the ARC Energy Research Institute. A respected public speaker, podcaster, blogger and author, Peter has devoted his career to energy. His knowledge of physics, business strategy, finance and economics allows him to give thought-provoking counsel on trends affecting the supply and use of energy. Peter has written two bestsellers on energy transitions — *A Thousand Barrels a Second* and *The End of Energy Obesity*. And in 2020, he launched Energyphile with associated book, *The Investor Visit and Other Stories*, as a learning platform for investors, corporate leaders, policy makers and energy stakeholders at large. In addition to his principal role as an energy economist, Peter is an Executive-in-Residence at the Ivey Energy Policy and Management Centre at the Ivey Business School, Western University. Peter has an undergraduate degree in Geophysics from the University of Alberta, a graduate degree in Econometrics from the University of Southampton UK, and a Master of Science in Management of Technology from the Sloan School of Management at MIT.

### **Chris Brown, Business Development Manager, Energy & Environment, Calgary Economic Development**

Chris Brown joined Calgary Economic Development in 2020 as Business Development Manager for the Energy and Environment sector, which includes Oil and Gas, Renewables, Clean-Tech, Electrification, and Sustainability initiatives. Chris is an active professional engineer with APEGA and holds a Masters degree in Renewable Energy from the Netherlands. Before this role, Chris worked in the Oil and Gas industry for 10 years in various sales, engineering, and management positions in Canada, Singapore, United States, and Qatar. In 2022, Chris was accepted as a Fellow at the Energy Futures Lab.

### **Yuill Herbert, Director and Principal, Sustainability Solutions Group**

Yuill Herbert is a cofounder and principal of the Sustainability Solutions Group, a climate planning consultancy that has designed climate action plans and community energy and emissions plans for more than 60 municipalities, encompassing over 30 percent of the Canadian population. He has leading expertise on climate change mitigation and adaptation systems modeling that incorporates energy, GHG emissions, and co-benefits. Yuill serves as a director on the boards of the Canada Research Chair on Sustainable Community Development and Tatamagouche Community Land Trust.

### **John Rilett, VP The Delphi Group**

As Vice President of Innovation and Cleantech with The Delphi Group, John is focused on working with private and public sector clients to accelerate the deployment and commercialization of clean solutions. John has over 18 years of experience working in the energy sector, all of it focused on the low-carbon energy transition. Specific areas of expertise include distributed generation solutions, renewable energy, carbon markets, and low-carbon transportation options.

### **Kristine O'Reilly, The Delphi Group**

As Delphi's Senior Cleantech & Innovation Consultant, Kristine spends a large portion of her time helping industry clients articulate their technology challenges and better understand how cleantech solution deployment can help meet their business and sustainability goals. Kristine has also previously worked in Alberta's cleantech development ecosystem as a technology scout and client advisor with Kinetica Ventures – an energy technology accelerator based in Calgary.



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### Key Terms

#### What is climate change?

**Climate** is the average weather conditions (such as temperature, precipitation and wind) of a region over a long period of time (30 years). **Climate change** is a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates. Climate change is caused by a dramatic increase in the concentration of greenhouse gas emissions in the atmosphere. These emissions are produced by humans burning fossil fuels such as coal, oil and gas, which began at the start of the Industrial Revolution in the mid-1700s.

Climate change has caused a shift in temperature and precipitation patterns, which has increased the severity and frequency of hazards such as severe storms, extreme heat and wildfire, and disrupted long-term trends in seasonal weather patterns.

#### What does climate adaptation and climate mitigation mean?

**Climate adaptation** refers to actions, programs and tools intended to reduce negative impacts of climate change on the City's infrastructure, natural assets, economy and people.

**Climate mitigation** is the processes and actions that stabilize or reduce the greenhouse gas concentration in the atmosphere.

#### What are greenhouse gases?

**Greenhouse gases (GHGs)** are gases that absorb and emit radiant energy within the thermal infrared range. The primary greenhouse gases in Earth's atmosphere are water vapor (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and ozone (O<sub>3</sub>).

**Carbon capture and sequestration (CCS)** is the process of capturing greenhouse gases before they enter the atmosphere and storing it.

#### What is Net Zero?

Net zero emissions refers to a state in which GHG emissions emitted into the atmosphere is balanced by the removal of GHG out of the atmosphere. Achieving net zero for the city of Calgary means that all buildings, vehicles, landfills, facilities, businesses, and industries within the city either do not emit greenhouse gases, or they offset their emissions through activities or projects that store carbon from the atmosphere.

#### How do we measure progress on climate change?

**Climate risk** is a metric for understanding climate change driven impacts and is determined by the likelihood of occurrence of hazardous events or trends multiplied by the consequences if these events occur. Progress on *climate adaptation* can be measured through changes in climate risk.

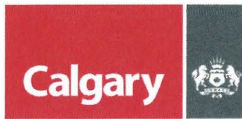
**Greenhouse gases (GHGs)** are the primary contributor to global warming, the process that is driving global and local climate change. Progress on *climate mitigation* can be measured through an estimate on the amount of GHGs released annually from Calgary sources such as building heating systems, vehicles, and the processing and storage of waste.

A **carbon budget** is the total amount of CO<sub>2</sub> emissions the world can emit while remaining within a certain temperature threshold. A carbon budget for *Calgary* would be the total cumulative amount of CO<sub>2</sub> emissions that Calgary can emit over the next 30 years if we want to reach our goal of Net Zero by 2050. Progress on *climate mitigation* can also be measured by calculating Calgary's carbon budget.

#### How do we report on that progress?

To be internally and publicly accountable, and transparent on climate action, The City reports our progress on climate change through several processes, including:

- **Climate-Related Financial Disclosure (CRFD)** is the disclosure of governance, strategy, risk management and metrics and targets related to climate risks and opportunities. The Task Force on CRFD (TCFD) has been deployed by Canadian municipalities including Calgary and provides a format to introduce climate risk-related disclosure to annual financial reporting. The City completed its' first TCFD report as part of the City of Calgary 2021 Annual Financial Report.



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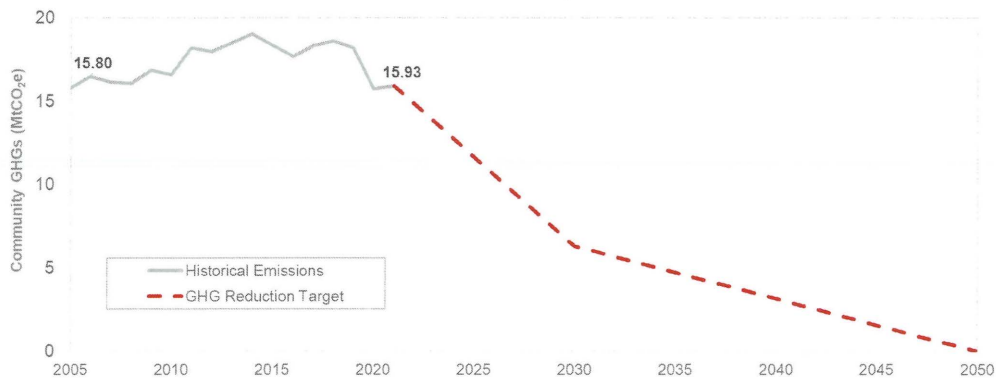
- **Carbon Disclosure Project (CDP)** is a global disclosure system to report climate change mitigation and adaptation progress. The City has been reporting into the CDP since 2014 and is consistently recognized on CDP's "A List" for high quality submissions demonstrating strategic best practice for climate action.

The City also reports annually on climate action to provide Council and Calgarians an update on the status of targets and metrics.

### ADDITIONAL INFORMATION

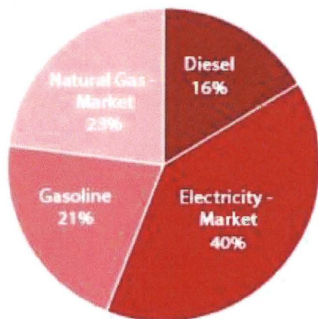
Greenhouse gases emitted by the City of Calgary have been steadily increasing.

#### Calgary community-wide GHG Emissions and Target (megatonnesCO<sub>2</sub>e)

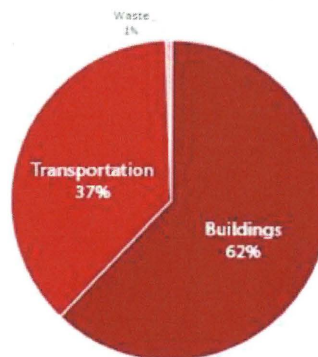


Of the total amount emitted by the Calgary community, the City of Calgary operations (our buildings and facilities, our fleet, our landfills) represent four per cent of all emissions generated. The remaining 96 per cent comes from the residential, commercial, industrial and institutional sectors in Calgary.

Community-wide Energy Use by Fuel Type



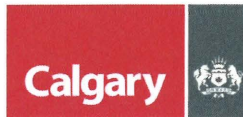
Community-wide GHG Emissions by Source



Alberta has experienced significant changes to its climate in recent decades. Average annual temperatures in Alberta are expected to increase. Climate modelling tells us that Calgary will experience more severe and frequent extreme weather events such as flooding, drought and the effects of wildfires. Climate change hazards have worrying implications for cities, including impacts on city water resources, damage to and failure of infrastructure, threats to human health and increased mortality. The diagram below illustrates the eight key climate hazards that are being made more likely and/or severe due to climate change.

Additional information on the expected climate related changes for Calgary to 2050 and 2080 can be found in the report [Climate Projections for Calgary](#) released January 2022.





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**Extreme heat:** Calgary will experience increasingly hot summers with more frequent and longer heat waves.



**Heavy rainfall:** More precipitation is falling as short-duration, high-intensity storms (SDHI) which can lead to overland flooding.



**Drought:** Drought conditions may become more common, prolonged and widespread.



**Heavy snowfall:** Damaging winter storms, heavy snow and blizzard conditions will continue to be hazards as core winter months remain below 0°C.



**Wildfire:** A longer and drier fire season will lead to more frequent, larger and intense wildfires.



**Severe storms:** Hail, high wind events and tornadoes are likely to occur more frequently and over more months of the year.



**Shifting seasons:** Winters are getting shorter, spring is arriving earlier, summers are longer and fall is arriving later.



**River flooding:** Flood timing, intensity and frequency is likely increasing.

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**Want to know more?** Visit The City's online portal [Calgary's Climate Change Program](#) where you will find further information on how [The City of Calgary is supporting greenhouse gas reductions](#) and [what The City is doing to prepare for climate change](#).

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### CLIMATE PERSPECTIVES

**Consistent polling data tells us Calgarians (and more broadly, Canadians) are increasingly concerned about climate change, and support action and investment to address climate change.**

The City of Calgary's Fall 2020 2021 Citizen Perspectives Survey on Climate Change found:

- The majority of Calgarians (86% aged 18-24, 69% aged 25+) are "concerned about climate change"
- The majority of Calgarians (89% aged 18-24, 73% aged 25+) agree with the statement "I think we need to act now to address climate change"

In August 2021, Alberta Ecotrust Foundation, the Calgary Climate Hub and Clean Energy Canada, in their "[Calgarians at a Crossroads](#)" poll, found:

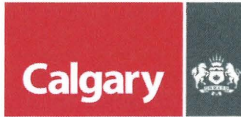
- The majority (69%) of Calgarians are concerned about climate change impacts and how they will impact their jobs, families, and the future of their communities.
- Almost three quarters (73 percent) believe that investing in climate change is an investment in long-term economic sustainability and prosperity.

[The Calgary Foundation's 2020 Vital Signs Report \(Environment and Nature\)](#), found:

- 67 % of Calgarians are concerned about climate change (and 86 per cent of Calgarians 25 years old or younger)

[Ipsos: Young Calgarians' Attitudes on Climate Change survey](#) of 501 Canadians aged 18-29 years from September 3-6, 2021 on the Ipsos i-Say panel conducted on behalf of the Canadian Youth Alliance for Climate Action (CYACA) found:

- Climate change (19%) is among the top five issues for Canadian youth
- 62% of young Canadians agree that Canada has an obligation to lead globally on climate change, and 51% based their 2021 election vote on climate platforms
- 40% of young Canadians say they have been personally impacted by climate change
- 67% of Canadian youth agree that climate change will negatively impact their future



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### KEY MESSAGES

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#### Primary

- The City of Calgary recognizes climate change has consequences for our city both now and in the future.
- Climate change poses risks to the health and wellness of Calgarians, the economy, public infrastructure and services, homes and private property, and natural ecosystems.
- While climate change is a complex challenge, tackling it presents opportunities to create new jobs in the low carbon economy, address social inequalities, reduce pollution, improve the comfort and liveability of our buildings and city, decrease energy costs, and improve the health and wellness of Calgarians.
- Responding to climate change is a strategic priority for the City of Calgary.
- We're working towards reducing greenhouse gas emissions to help limit global climate change, and adapting to a changing climate by taking actions to reduce the impact of extreme weather events and climatic changes.
- Calgary City Council declared a Climate Emergency in November 2021, directing the pace and scale of action to be accelerated, and enabling Administration to build climate into business planning.
- Consistent polling data tells us the majority of Calgarians are concerned about climate change and support action to address climate change now.
- We're updating the Climate Strategy to make sure we're establishing the best approach to enable climate action.
- Our updated Climate Strategy will identify critical actions, tools and programs needed in the next five years to:
  - reduce greenhouse gas emissions to net zero by 2050;
  - reduce the impacts of climate change on the economy, social systems, infrastructure and natural ecosystems; and
  - support a low carbon economy.

#### Secondary

- Cities have a critical role to play in reducing greenhouse gas emissions to help limit global climate change, transitioning to a low carbon economy, and adapting to protect citizens, natural ecosystems and property from climate hazards.
- More severe and frequent extreme weather events have worrying implications for cities, including impacts on city water resources, damage to and failure of infrastructure, threats to human health and increased mortality.
- National research tells us that for every dollar we invest to reduce our exposure to climate hazards such as flooding, we can expect to save approximately \$6 in future costs to recover from such events. As we continue to see more frequent and severe extreme weather events, the case for accelerated action only becomes stronger.
- Actions that reduce energy use and greenhouse gas emissions offer opportunities for cost savings and enable the transition to a low carbon economy.

CITY OF CALGARY  
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APR 26 2022

ITEM: 2 - Opening remarks  
distribution

CITY CLERK'S DEPARTMENT