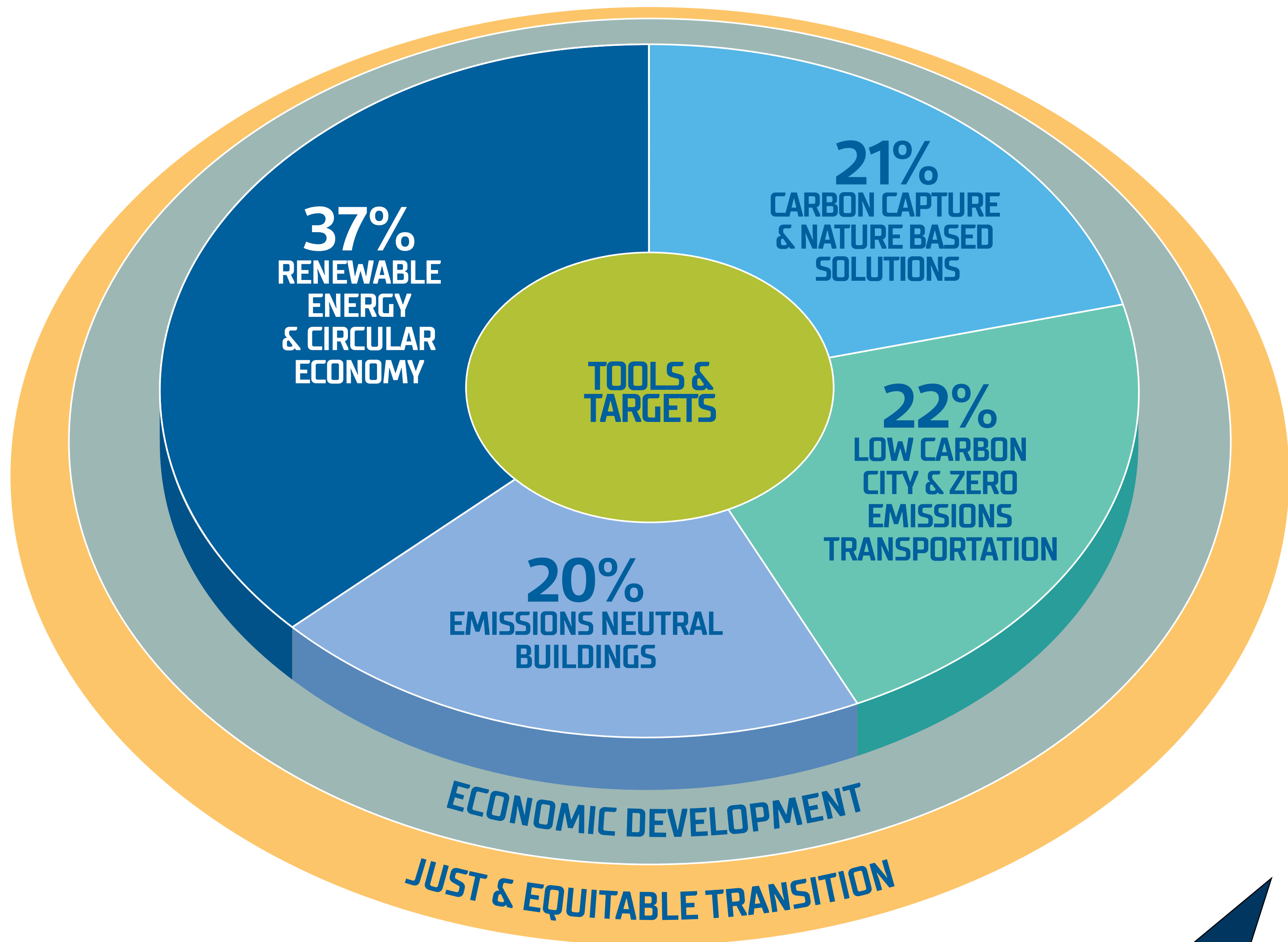


COMMUNITY ENERGY TRANSITION STRATEGY

The City of Edmonton is updating its Community Energy Transition Strategy (CETS) to align with the international target of limiting global warming to 1.5°C.

To meet this global target, Edmonton's local carbon budget has been set at 135 Megatonnes. This is the amount of greenhouse gas emissions that can be released over the next 30 years. At our current levels of emissions we will exceed the budget in 7 to 9.5 years.

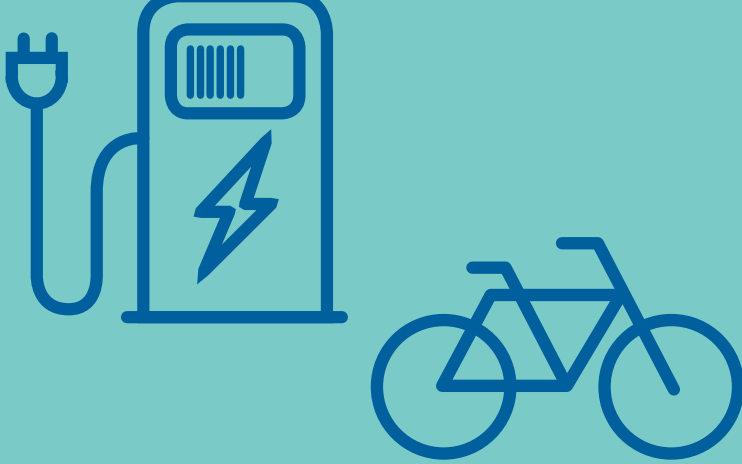
Edmonton's energy transition must be ambitious in speed and scale of change. Possible actions have been organized into seven climate shifts and the percentages below describe how each shift contributes to reaching our target. The Just & Equitable and Economic Development shifts are lenses that apply to all other shifts.




How can we make this energy transition happen in a just, equitable and prosperous way?

CLIMATE SHIFT 1 

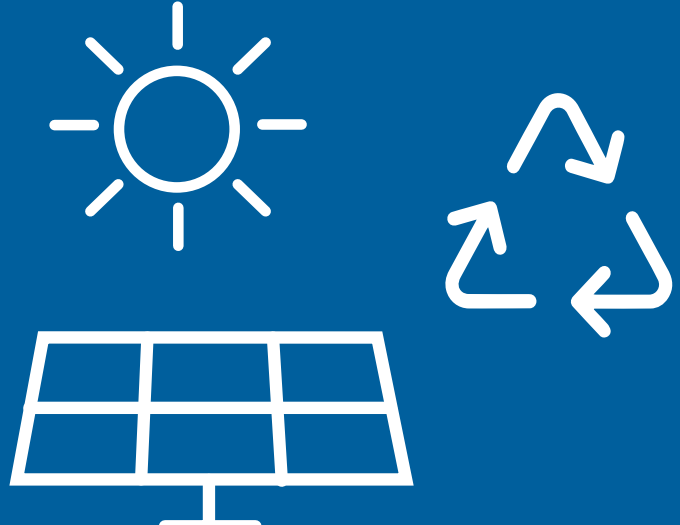
TOOLS & TARGETS

CLIMATE SHIFT 2 

LOW CARBON CITY AND ZERO EMISSIONS TRANSPORTATION

CLIMATE SHIFT 3 

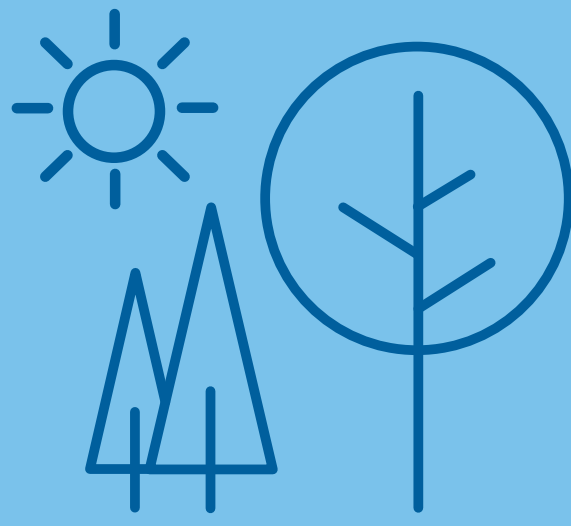
EMISSIONS NEUTRAL BUILDINGS

CLIMATE SHIFT 4 

RENEWABLE REVOLUTION & CIRCULAR ECONOMY

CLIMATE SHIFT 5 

JUST AND EQUITABLE TRANSITION

CLIMATE SHIFT 6 

CARBON CAPTURE AND NATURE BASED SOLUTIONS

CLIMATE SHIFT 7 

ECONOMIC DEVELOPMENT

HOW CAN YOU PARTICIPATE?

Using the climate shifts and their actions as a starting point, please help us answer the three questions below. Think about opportunities and challenges and any other solutions you might have.

- » **How can we make the proposed energy transition happen in Edmonton?**
- » **How can we make the transition just and equitable?** (i.e. fair, inclusive, accessible)
- » **How can this transition make Edmonton more prosperous?** (i.e. diversified economy, jobs, innovation, growth)

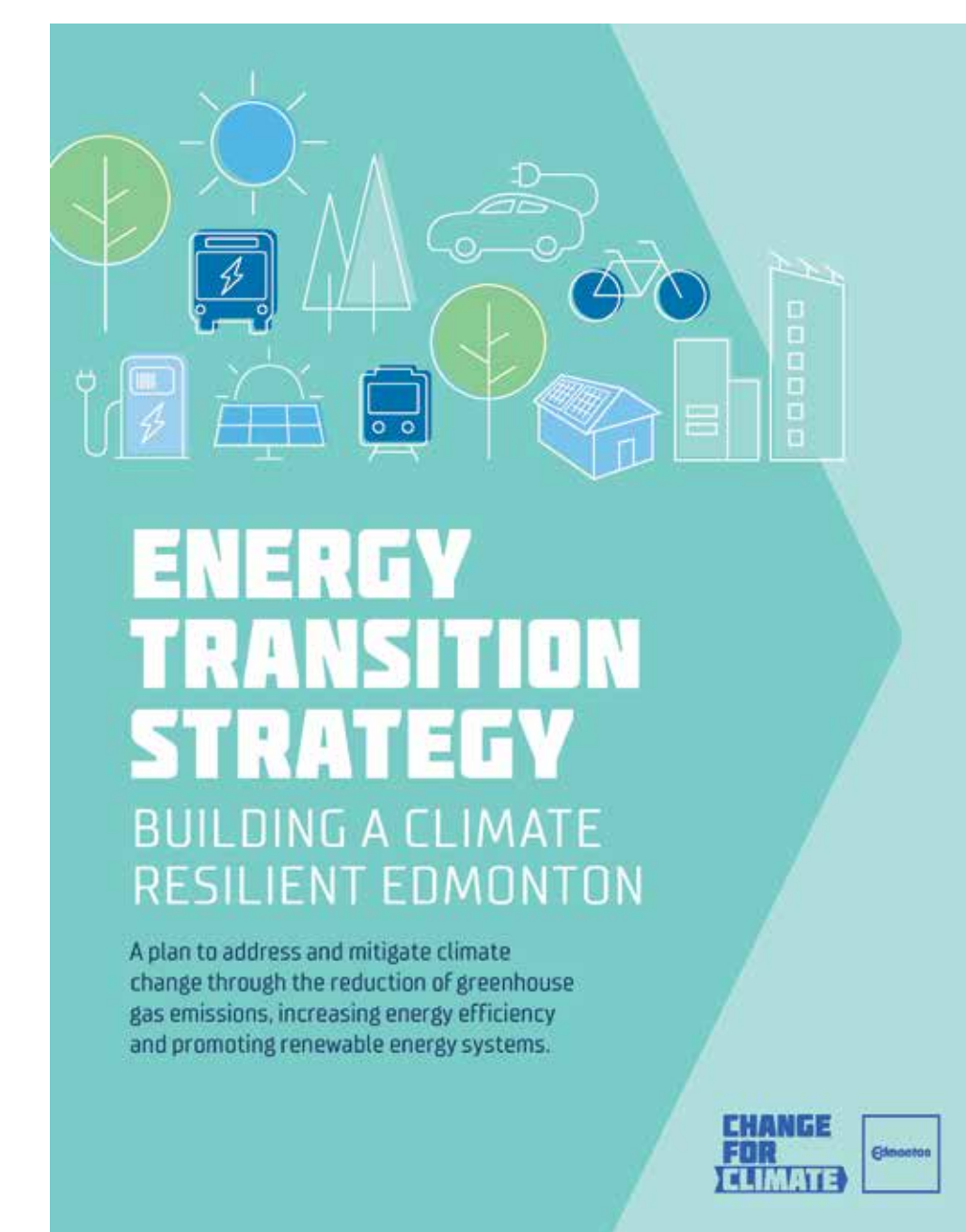
Engagement activities are planned from September 2019 to August 2020 and we will be asking for your feedback to make adjustments to the proposed Energy Transition Strategy. This project follows the City of Edmonton's public engagement spectrum, which is used to define the role of the public, the level of influence the public has in this process and a commitment by the City to use the input to make decisions on the direction of the project. The level of the spectrum that will be used for this engagement is ADVISE and REFINE.



PROJECT TIMELINES

2015

Energy Transition Strategy is approved and currently in implementation



2019

AUGUST 2019

City Council directs Administration to update Edmonton's Community Energy Transition Strategy and declares a climate emergency

SEPTEMBER 2019 to AUGUST 2020

Targeted stakeholder engagement

2020

JUNE 2020

Draft of the updated Strategy presented to Council

OCTOBER 2020

Final updated Strategy presented to Council

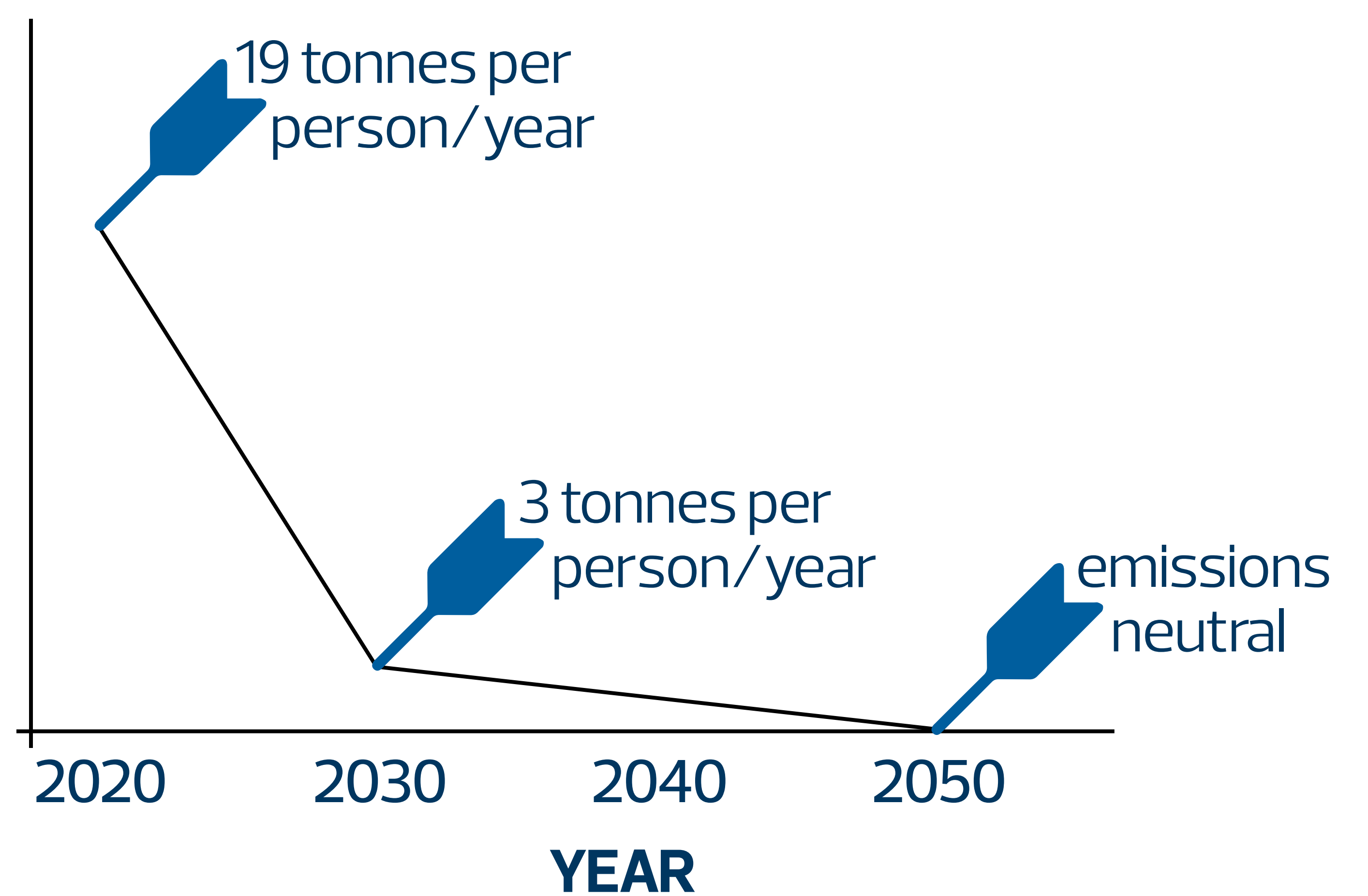
CLIMATE SHIFT 1



TOOLS & TARGETS

TARGETS

The City of Edmonton is committing to a local carbon budget of 135 Megatonnes. This is the maximum amount of greenhouse gas emissions that Edmonton should emit over the next 30 years. This requires transitioning from 19 tonnes of emissions per person/year to 3 tonnes per person/year by 2030, and being emissions neutral by 2050.



TOOLS

To model, monitor, measure and influence Edmonton's contribution to climate change and to make informed decisions, the City will use:

A Local Carbon Budget

Edmonton's carbon budget was calculated using international modeling systems. In addition to being a target, it helps the City allocate and monitor emissions.

Carbon Accounting

Municipal decisions will be made by integrating the local carbon budget into operating and capital planning.

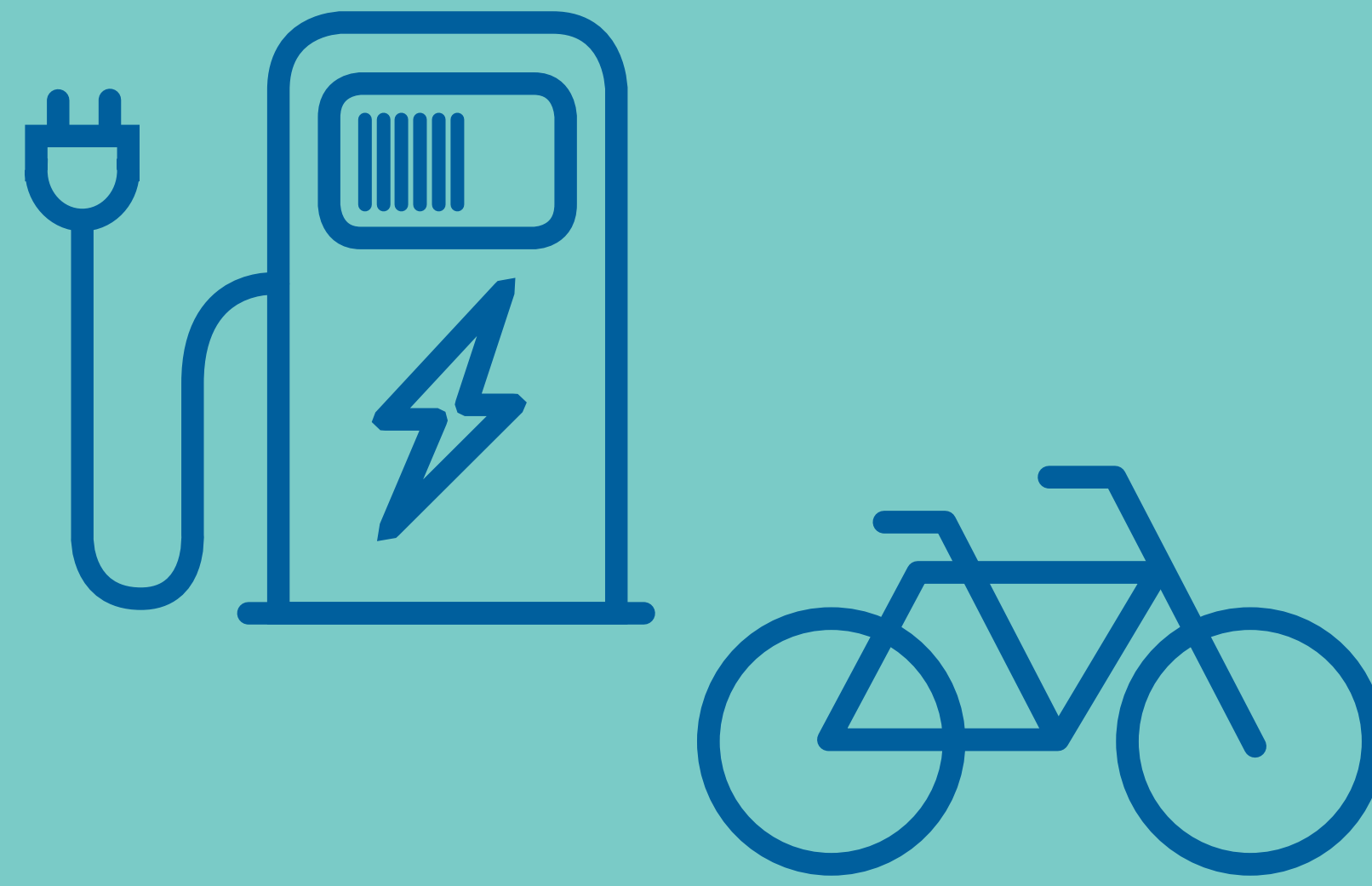
Consumption Based Emissions Inventory

This inventory will help the City understand and account for the emissions of the items we produce and export, or import.

Community Engagement & Education

City-wide community programs that work with residents and businesses to collectively reduce emissions.

CLIMATE SHIFT 2



LOW CARBON CITY AND ZERO EMISSIONS TRANSPORTATION

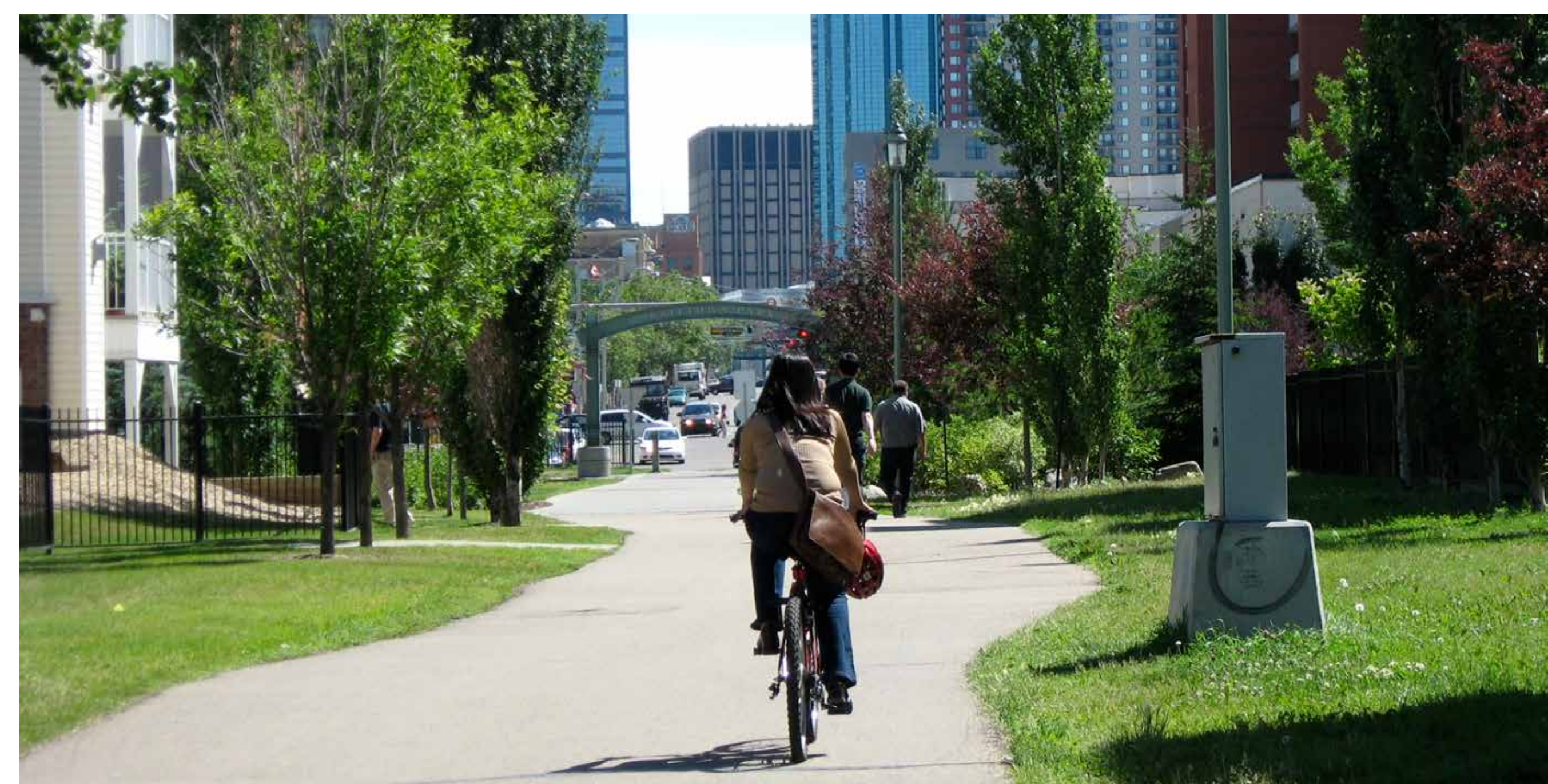
As Edmonton grows to be the home of two million people by 2050, being a low carbon city with an emissions free transportation system will be essential to meet the target of limiting global warming to 1.5°C.

The City will aim to:

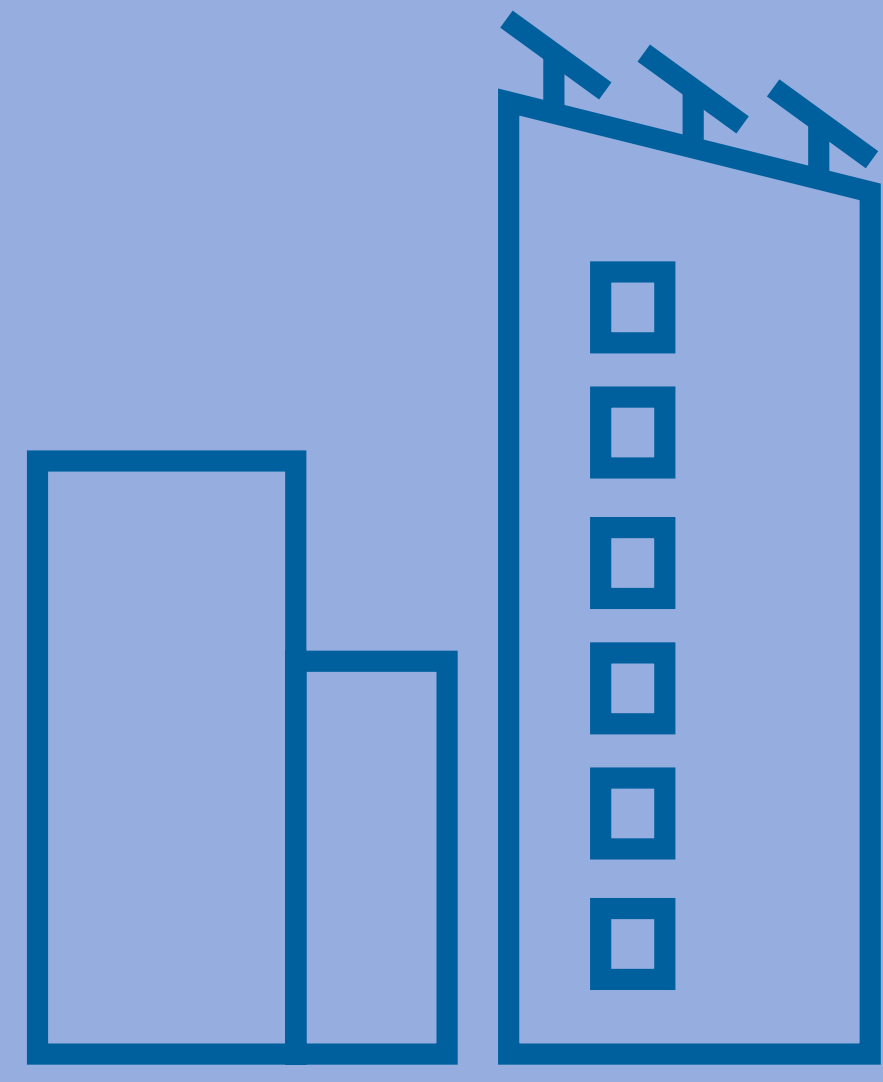
- Transition all personal and commercial vehicles to be emissions neutral by 2050, with all new personal vehicle sales to be electric by 2030.
- Promote active transportation resulting in residents walking/biking for 50% of trips shorter than 5 km by 2050.
- Reduce the size of homes by 25% and of workspace by 40% by 2050 (compared to 2016).

This can be done by:

- Expanding the light rail transit system and making sure all buses are electric vehicles.
- Significantly expanding the bike network.
- Establishing car free zones.
- Expanding and enhancing the transit system.
- Increasing city density, including efficient development of greenfields.
- Ensuring carbon neutral development is part of engineering and design standards.



CLIMATE SHIFT 3



EMISSIONS NEUTRAL BUILDINGS

Buildings produce 30% of Edmonton's greenhouse gas emissions and approximately 80% of the buildings that will exist in 2050 are already built. We need to focus both on making sure that new buildings are built to be highly energy efficient and find ways to retrofit and upgrade existing buildings to lower their greenhouse gas emissions.

The City will aim to:

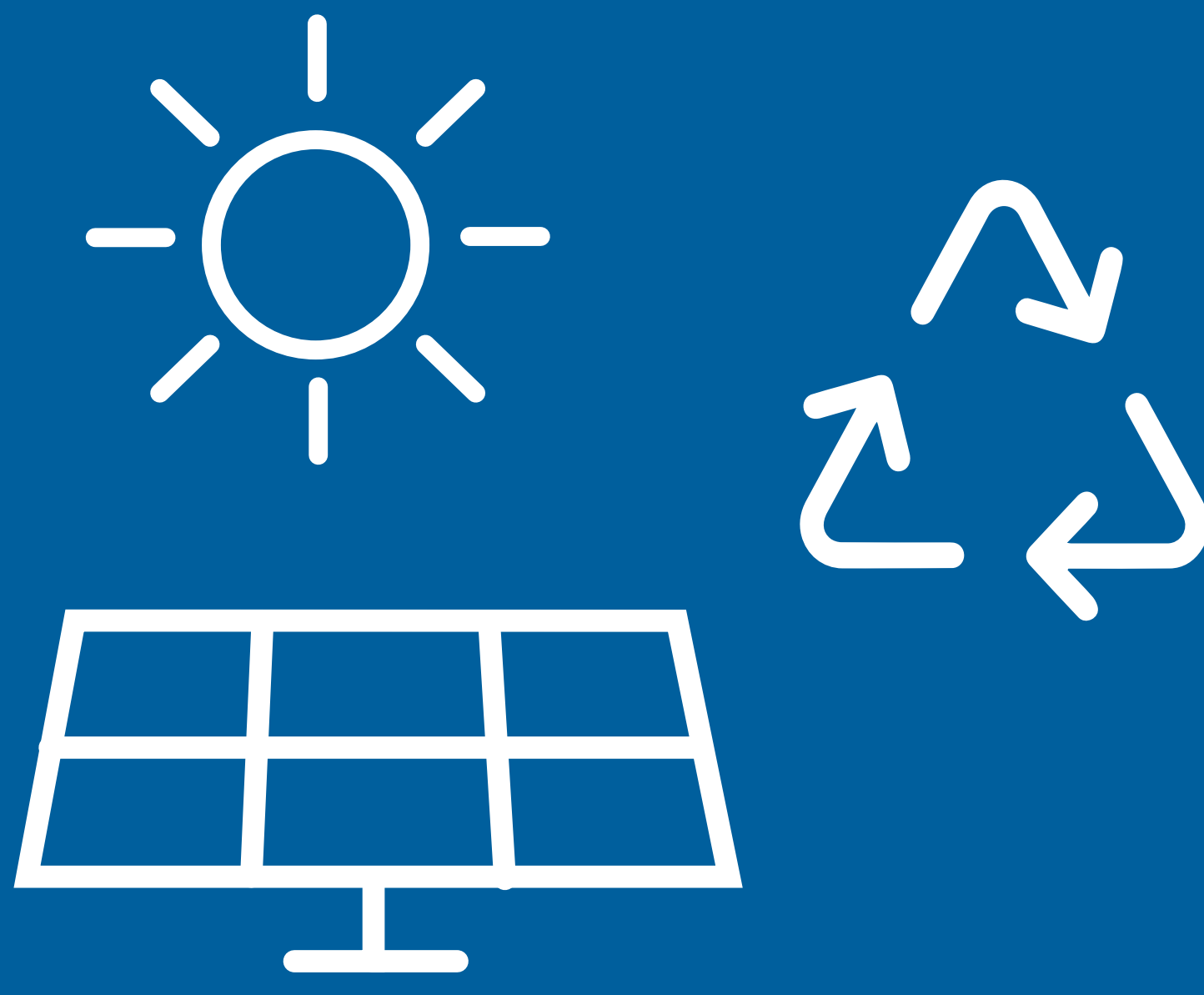
- Ensure all new buildings (residential and commercial) are emissions neutral by 2030.
- Ensure all existing buildings are retrofitted to be energy efficient, achieving heating and electricity reductions of 50% by 2050.
- Reduce energy use of industrial operations by 75% by 2050.

This can be done by:

- Implementing mandatory energy disclosure and labeling for buildings.
- Implementing a Clean Energy Improvement Program and other grant programs to help finance retrofits and new builds.
- Developing energy improvement and retrofit programs for residential and commercial buildings.
- Partnering with industry to establish emissions neutral building standards.
- Building on the Province's industrial climate actions.
- Increase the use of heat exchange systems rather than natural gas furnaces to heat buildings.



CLIMATE SHIFT 4



RENEWABLE REVOLUTION & CIRCULAR ECONOMY

To meet our targets it is necessary to expand generation of local renewable energy and embrace a circular economy where waste is not created.

The City will aim to:

- Have roof solar systems on 85% of all new and existing buildings, supplying 60% of their electricity needs by 2040.
- Use 100% renewable electricity in City operations by 2030, by installing solar energy systems on City owned buildings and procuring renewable sourced energy.
- Meet 10% of Edmonton's total energy needs (heating & electricity) from local, emissions neutral sources by 2030.
- Have 100% of Edmonton's energy sources be emissions neutral by 2050.
- Divert 90% of waste from landfill by implementing the 25 Year Waste Strategy.

This can be done by:

- Expanding financial incentive programs to install renewable energy systems on homes and commercial buildings.
- Advancing hydrogen production and use.
- Supporting community/business models that advance renewable energy, district energy and decentralized energy storage.
- Supporting further greening of Alberta's electricity grid by advocating for wind and other renewable energy generation outside Edmonton's borders.
- Supporting conversations on the advancement of nuclear fission and fusion.
- Expanding renewable and low-carbon district energy systems that provide heat and power more efficiently.
- Developing partnerships and strategies to reduce food waste, by redirecting, rescuing and composting surplus food.



CLIMATE SHIFT 5



JUST AND EQUITABLE TRANSITION

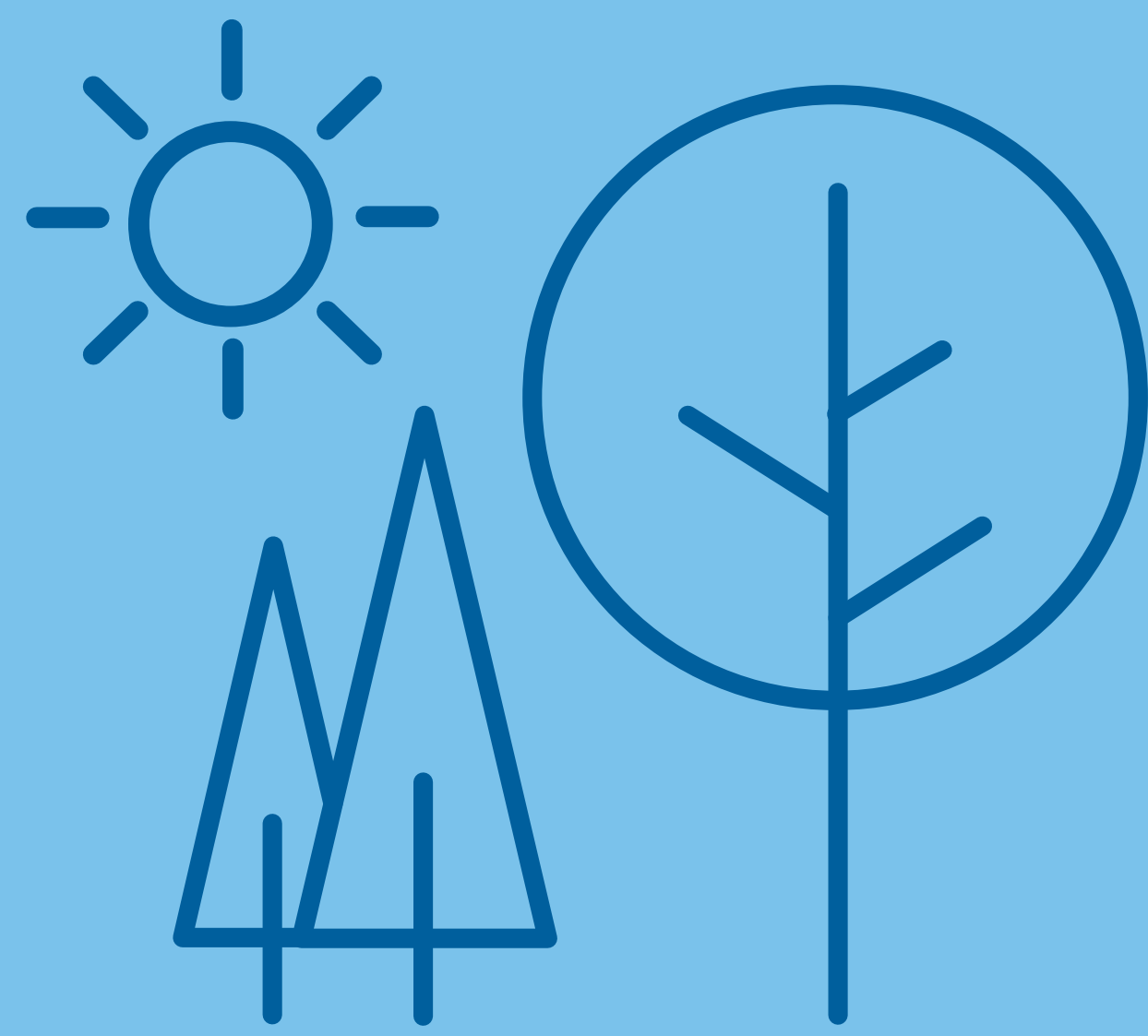
Climate change impacts are most severely felt by populations already challenged by social and economic disadvantages, globally and locally. As we transition to a low carbon future, it's critical that all Edmontonians have access to the benefits and opportunities this new economy can bring.

The City is looking into:

- Applying Gender Based Analysis Plus (GBA+) when developing policies and programs (an analytical process that looks at how people of different identities might experience initiatives differently).
- Implementing income-based programs to help residents make their homes more energy efficient, access renewable energy, and alleviate energy poverty.
- Partnering to establish a Green Job Access program to help displaced energy workers and other disadvantaged communities get jobs in the renewable and energy efficiency industry.
- Establishing a working group to provide an opportunity for equity voices to inform a just & equitable framework that can be applied to decisions made when mitigating and responding to climate change.
- Creating partnerships to encourage new immigrants and under-represented minorities to take climate action, alleviate their energy burden and adapt to climate change.
- Creating partnerships to increase participation of Indigenous Peoples in the new green technology sector.
- Encouraging women, youth and gender minorities to participate in leadership and governance.
- Ensuring affordable housing is energy efficient and emissions neutral, reducing energy costs and increasing total affordability.



CLIMATE SHIFT 6



CARBON CAPTURE AND NATURE BASED SOLUTIONS

About 21% of our emissions will have to be reduced by capturing carbon through sequestration or by using carbon in products. A combination of nature based and technological solutions, including purchasing carbon offsets, will be required to maintain the carbon budget. Specific targets are under development.

The City is looking into:

- Preserving and restoring natural areas (such as wetlands) to act as carbon sinks.
- Expanding Edmonton's tree inventory (planting two million trees by 2050) and encouraging the retention and establishment of diverse native tree species on City and private lands.
- Promoting sustainable urban farming practices in Edmonton to maximize carbon sequestration in soils.
- Partnering with industry to provide opportunities to research, develop and scale new products for carbon sequestration and utilization.
- Supporting commercially viable carbon capture, utilization and storage initiatives.
- Providing incubator services for start-ups focused on innovative technologies to reduce carbon footprint and enhance climate adaptation.
- Developing a carbon offset purchasing strategy that will reduce global carbon emissions, like restoring a wetland or supporting sustainable farm practices outside of Edmonton.



CLIMATE SHIFT 7



ECONOMIC DEVELOPMENT

The environment and economy are interconnected. Environmental sustainability is considered the primary driver to diversify the local economy.

The City will aim to:

- Create 210,000 jobs between now and 2050 (an average of 6,500 jobs/year).
- Reduce Edmonton's energy costs by an average of \$750 million per year over the life of the strategy.
- Ensure societal benefit cost ratios of greater than one.

This can be done by:

- Working with local economic development partners to market and promote local expertise, products and services globally.
- Developing partnerships to attract investment in the circular economy.
- Partnering to deploy smart grid and local energy storage technology.
- Partnering with local higher education and training institutions to develop apprentice programs, which employ workforce trained in green energy economy sectors.
- Partnering with other levels of government, funding agencies and financial institutions to lessen the risk of green economy solutions (green loan guarantees and Clean Energy Improvement Program).
- Working with financial institutions to develop financial products (green bonds or solar share co-ops) that support the green economy and remove investment barriers.
- Having the City act as an incubator for innovation.

DEFINITIONS

Carbon budget: the amount of emissions permitted over a period of time in order to stay within a temperature threshold. As we release greenhouse gases, the remaining budget is reduced.

Carbon capture: a process that captures carbon emissions from their source or directly from the air.

Carbon offsets: reducing carbon emissions to compensate for emissions released elsewhere. Offsets are tradeable (they can be bought and sold).

Carbon sequestration: the long-term storage of captured carbon emissions in vegetation and soils through plant growth or underground rock formations.

Carbon utilization: a process that uses captured carbon emissions as a resource when creating new products or materials.

Circular economy: an economy in which resources are kept in use for as long as possible. At the end of a product's life its components are recovered and regenerated into other products rather than being disposed of in a landfill.

Emissions neutral: describes technologies or systems that have no net impact on global greenhouse gas levels. This means they either do not add emissions to the atmosphere or remove as many emissions as they create.

Greenhouse gas emissions: the release of atmospheric gases like carbon dioxide and methane that contribute to global warming (generally referred to as carbon emissions).

Just & Equitable Transition: a dialogue and planning process to ensure that all Edmontonians have access to the benefits and opportunities this energy transition can bring, and that nobody is unfairly impacted by these changes.

Low carbon city: a city-building approach that focuses on reducing carbon emissions primarily by minimizing or eliminating the use of energy produced from fossil fuel combustion.

One tonne of carbon dioxide (CO₂): is a unit of greenhouse gas emissions. One tonne of CO₂ is roughly equivalent to the amount of greenhouse gases released by driving 4500 kms or heating a home over the winter months.

Renewable energy: energy that is produced with a fuel source that is naturally replenished within the lifespan of a person (e.g. solar, wind, geothermal).