

Carbon / Climate Budget – Analysis and Next Steps

ISSUE

Like several cities, the City of Saskatoon (City) has set greenhouse gas (GHG) emission reduction targets and plans to help mitigate climate change. To support low carbon targets and plans, some cities have embedded their climate plans within their financial accounting frameworks in a holistic approach to GHG mitigation, sometimes called a “carbon budget” or a “climate budget”. Of the two examples for an integrated approach, should Saskatoon proceed with the carbon budget or the climate budget to support GHG reductions and to achieve the broader societal benefits from climate action?

RECOMMENDATION

That the Standing Policy Committee on Environment, Utilities, and Corporate Services recommend to City Council:

1. That a climate budget approach, as outlined in this report, be approved in principle for implementation during the 2024/2025 budget planning cycle; and
2. That Administration be directed to draft and present to the Governance and Priorities Committee for approval, a policy amendment to the Multi-year Business Plan and Budget Policy to reflect the goals, principles, and process for a climate budget as outlined in Appendix 4.

BACKGROUND

On June 26, 2017, City Council set GHG emissions targets for Saskatoon, based on the 2014 inventory as follows:

1. 40% reduction in GHG emissions for the City as a corporation by 2023; and a reduction of 80% by 2050; and
2. 15% reduction in broader community emissions by 2023; and a reduction of 80% by 2050.

At its meeting held on April 6, 2021, the Environment, Utilities, and Corporate Services Committee received the *Climate Action Progress Report* and resolved, in part:

That the Administration report back on the feasibility of implementing the City of Edmonton's carbon budgeting approach.

At its meeting on March 7, 2022, the Environment, Utilities, and Corporate Services Committee received the information report titled [Carbon Budget Overview](#) which provided background on the City's current climate reporting framework, and details on Edmonton's carbon budget approach. In response to that report EUCS resolved in part:

That the Administration provide an initial report on the principles of the carbon budget and develop a business case outlining funding requirements.

At its meeting on November 21, 2022, City Council received the [Climate Action Plan: Progress Report 2021](#) (CAP 2021) which includes the 2021 GHG inventory and Low Emissions Community (LEC) Plan progress status. CAP 2021 reports that 33 LEC Plan actions are on track (23 progressing and 10 not scheduled to start), with 7 that have fallen behind the timeframe set out in the LEC Plan. As stated in that report, Saskatoon's GHG emissions have decreased compared to the baseline, including:

- The City, as a corporation, emitted 217,800 tonnes CO₂e in 2021, a decrease of 3% compared to the 2014 baseline.
- Saskatoon, as a community, emitted 3,509,600 tonnes of CO₂e in 2021, a decrease of 9% compared to the 2014 baseline.

CURRENT STATUS

Saskatoon's GHG Reduction Target

Saskatoon's GHG Reduction target was set in 2017, demonstrating a commitment to mitigating climate change and limiting global temperature rise to 2 degrees Celsius. However, the International Panel on Climate Change (IPCC) and the Paris Agreement has now shown that more ambitious targets (net zero by 2050) are required that will keep global temperature rise within 1.5 degrees Celsius. Cities have an important role in meeting this and in response, many cities and the Federal Government have set net zero targets.

The City of Saskatoon's Climate Reporting Approach

The [Carbon Budget Overview Report](#), outlines the City's approach to climate reporting, including:

- LEC Plan sets sector-based actions and time frames;
- Regular GHG Inventory and GHG emissions estimates (now every second year);
- Low Emissions Community Plan and Progress Reporting; and
- Triple Bottom Line (TBL) Policy.

In this approach, GHG emissions and LEC Plan progress reporting are past-looking and not integrated with financial reporting or decision-making. The City's TBL reviews consider climate as one of many factors and are used to identify opportunities to maximize co-benefits for a particular project.

The City's LEC Plan provides emissions modelling and a phased action plan which could be used as a framework for decision-making if integrated into the financial budget cycle.

The City of Saskatoon's Financial Decision-Making Approach

The City completes budgeting on a two-year cycle. In 2022-2023, many projects related to climate action were proposed for consideration and further initiatives are planned for 2024-2025 in alignment with the LEC Plan. Funding commitments from 2022-2023 are detailed in CAP 2021. However, without a consistent prioritization framework, funding decisions may not align with climate commitments.

DISCUSSION/ANALYSIS

Building on the information collected for the *Carbon Budget Overview* report, a jurisdictional scan was completed consisting of a literature review of public documents from the City of Oslo, Norway, C40 Cities, and multiple Canadian cities. Additionally, interviews and correspondence were conducted with seven cities in Canada who are at different phases of this work. The research shows that there are two broad approaches to connect funding decision-making and climate action. These two approaches include the carbon budget system, as used in Edmonton and the climate budget, as used in Oslo.

Carbon Budget

A [carbon budget](#) sets the total amount of carbon dioxide equivalent (CO₂e) emissions permitted over a period to stay within the temperature threshold of 1.5 or 2 degrees Celsius. The total budget is then broken down into annual amounts for the maximum amount of carbon a jurisdiction can emit that year.

Using this approach, GHG emissions for every activity that produce or reduce emissions are estimated using a carbon accounting framework. A carbon accounting framework is a suite of tools used to estimate and track emissions annually in alignment with the carbon budget (for example: emissions calculators for projects; business planning templates; annual emissions inventories; and communications and education materials).

In Edmonton, City Council considers these emission estimates when making financial decisions at budget time and strives to keep annual emissions below the amount budgeted for that year.

Key takeaways from the Edmonton approach include:

- Uses a cap on emissions that every department needs to stay under;
- Prescriptive approach;
- Requires buy-in from every department;
- Total emissions must decline year over year; and
- Carbon budget report alongside financial budget report.

This approach was discussed in detail in the March 2022 committee report titled [Carbon Budget Overview](#), in response to the direction to Administration to investigate Edmonton's Carbon Budget, including a summary of Edmonton's methodology.

Climate Budget

According to [C40 Cities](#), a climate budget is a governance system that establishes all the actions that a jurisdiction needs to take in the short-term to achieve the long-term targets it has set out in its Climate Action Plan. If implemented, a climate budget operationalizes the climate action plan by turning long term targets into concrete actions with financial backing. The climate budget is a chapter within the broader financial budget and updated with each budget cycle. The climate budget focuses on the most impactful emission sources in their municipality instead of estimating the emissions from

all activities. The C40 Cities' [Manual for climate budgets as a governance tool](#) and [Oslo's Climate Budget for 2022](#) has informed this summary.

Oslo was the first to implement a climate budget in 2017 and their climate budget integrates climate actions within the financial budget process by identifying:

- A summary of the city's climate target, historical emissions sources, and GHG inventory;
- The business as planned emissions projection;
- The GHG reductions needed for that budget cycle to meet overall targets;
- The measures with quantifiable emissions reductions required to meet the reduction total;
- Whether there is a gap between the measures and the emission reduction goal;
- Responsible departments;
- Cost of the measures;
- Measures for the budget cycle with non-quantifiable emissions reductions; and
- Activities for the budget cycle which lay the foundation for future emission reductions.

Oslo's climate budget focuses on scope 1 emissions for the geographical boundary of the city. This includes emissions categories for their region such as: agriculture, forestry, and other land use; stationary energy; waste; industrial processing; and in-boundary transportation.

Their climate budget includes actions that combine national, regional, and municipal or local efforts. Key takeaways from the Oslo approach include:

- Evaluates the total reductions needed to meet targets up to 2030;
- Focuses on impactful emissions projects that will achieve the reductions needed;
- Identifies three types of action – those with quantifiable emission reductions (projections are included in the climate budget), those expected to reduce emissions but cannot be quantified, and those that lay the foundations for further emissions reductions;
- Requests funding for those projects in each cycle; and
- Frequent progress reporting.

Like Canada, Norway imposes a price on carbon emissions. According to reports, the national government is proposing to more than triple its tax on carbon dioxide by 2030, increasing its charge for a ton of emitted CO₂e from €60 to €200. This incentivizes Oslo to develop and implement tangible carbon reduction measures. Canada's carbon price is anticipated to rise from C\$65 per tonne CO₂e in 2023, to C\$170 per tonne of CO₂e in 2030.

Canadian Cities

Notwithstanding these similarities and differences, Canadian cities are approaching the challenge of operationalizing their climate plans using a variation of the Edmonton method (carbon budget) or the Oslo method (climate budget), with each city

customizing their approach to their own financial budgeting process. Some cities refer to their approach as a prioritization process or another name but for consistency across all municipalities, the Administration refers to their approach as either a carbon budget or climate budget.

Appendix 1 summarizes the scan of Canadian cities' climate or carbon budget approaches. At the time of this research, most of these cities had not fully implemented their climate or carbon budget; therefore, capital costs and staff requirements encompass feasibility, implementation planning, and/or development of their approach, not fully scaled operations.

Common themes that emerge from the jurisdictional scan include:

- Cities (and municipalities) use a variation of the *carbon* budget system, as used in Edmonton, or the *climate* budget, as used in Oslo. Most Canadian cities (or municipalities) are in the development or implementation phase of budgeting.
- Climate action targets were often aligned with the federal government target of net zero emissions by 2050, to reduce warming to 1.5 degrees Celsius.
- Many cities either have a staff member in their finance department completing this work, or support from finance staff.

Carbon Budget and Climate Budget Analysis

Administration analysed the implications of applying either a carbon or climate budget approach in Saskatoon. The significance of both approaches is they integrate GHG emissions mitigation into the corporate budget deliberations. These integrated budgets facilitate a comprehensive understanding of resource requirements to meet emission reduction targets, with a potential added benefit of aligning with federal funding opportunities and requirements needed to leverage additional funds.

Carbon Budget

A carbon budget approach would cap total annual emissions for the next budget cycle based on current emission reduction targets or more ambitious targets that align with current IPCC recommendations. It would require every civic department to estimate emissions for their projects and operations during their business planning processes. This information would then be used in determining funding decisions with the goal of aligning funding decisions to meet the carbon budget for the budget cycle's time frame (i.e., 2024-2025).

This approach would require a champion or staff support for each department to estimate all emissions and change management or training well in advance of the budget planning process. It would likely need to be phased in over multiple budget cycles as it would be a transformational shift for the corporation. However, it would ensure that every department understands the full carbon implications of their projects and operations and considers emissions during the financial budgeting process. Figure 1 illustrates the carbon budget approach.

Climate Budget

For the climate budget, consideration focuses on funding those actions that will result in significant GHG reductions, as seen in figure 2. Oslo’s climate budget is built like a climate action plan. It provides background and current emissions sources, business as planned and low emissions scenario projections, actions for implementation, and emissions reduction estimates for those actions, like the City’s LEC Plan. However, Oslo’s approach goes one step further than the LEC plan and identifies the measures for implementation within a specific budget cycle in direct alignment with mitigation targets. The full climate package is included within the regular budget documents to City Council with a specific funding request for each measure and a responsible department assigned for implementing each action.



Figure 1 – Illustration of an approach to carbon budget (City of Vancouver)

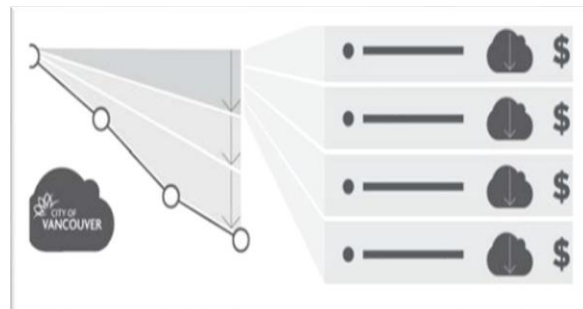


Figure 2 – Illustration of an approach to climate budget (City of Vancouver)

For Saskatoon, this would mean that every LEC Plan Action for that time frame is included for budget consideration, providing a full understanding of the carbon reductions and resource needs (Appendix 2, Appendix 3). The outcome would be funding requests for emissions reduction measures with accountability for reduction levels at each budget cycle, rather than at the 2050 end date. The Climate Action Plan would also track the projected GHG savings outlined in the climate budget against the actual inventories over regular reporting cycles.

In the climate budget, quantification of GHG impacts from all activities is not tabulated through a climate accounting framework; however, where possible in the near term, GHG impacts could be included in business cases or in the Multi-Year Budget’s Capital Project Details – Project Notes as part of the climate budget development.

Once changes to the policy and financial budget process are complete, the climate budget approach would be focussed on the departments that are responsible for emission-reduction actions listed in the LEC Plan. The City’s climate budget approach would require departments that are responsible for LEC actions to develop funding requests that align with the LEC Plan and to estimate emissions from these requests wherever possible. Sustainability would work with these departments to ensure funding requests and business cases for each LEC action are requested through the budget process, support GHG calculation preparation where needed, and update emission reduction estimates to include in the climate budget. Departments that are not leading LEC actions would have little or no input into Saskatoon’s climate budget. The majority

of the work associated with the climate budget would be carried out by Sustainability staff with support from the Finance Department to enable appropriate integration with the regular budgeting process. Sustainability staff would identify which actions should be included in the climate budget, support departments with funding requests and emissions calculations, and develop the climate budget chapter.

Comparison of Both Approaches

The pros and cons of the carbon and climate budget approaches are summarized in Table 1.

Table 1: Comparison of the carbon and climate budget approaches.

Carbon Budget	
Pros	Cons
<ul style="list-style-type: none"> • Provides full accounting of all emissions produced from both operating and capital activities, meaning that additional opportunities to reduce emissions may be identified (beyond those identified in the LEC Plan) • Improves transparency of emissions and whether the jurisdiction can meet reduction targets by setting annual thresholds • Builds accountability and literacy for all staff/departments around carbon 	<ul style="list-style-type: none"> • Challenging and resource intensive to estimate emissions from all activities • Requires effort and champions from all departments (likely a transformative shift requiring significant change management support) • Cannot be implemented for the 2024/2025 budget cycle • Requires additional resources and a consultant to implement (which are not currently available)
Climate Budget	
Pros	Cons
<ul style="list-style-type: none"> • Can be implemented for the 2024/2025 budget cycle using a reallocation of existing resources • Builds on and aligns with existing processes, meaning that implementation will be simpler and have less of an impact on staff, since in many cases we are already doing this • Identifies funding for key actions to reduce emissions and improve overall accountability • Tracks measures in each budget cycle against GHG reduction requirements needed to meet target 	<ul style="list-style-type: none"> • Uses the business as planned (BAP) projection as a baseline to calculate reductions required to meet target – there is a risk that the projection may not include all of the emission impacts • Does not consider the overall emissions impact of all City activities each budget cycle, meaning that there may be missed opportunities to reduce emissions • Does not place an annual cap on emissions, meaning there may be a higher likelihood of missing targets compared to a carbon budget approach

Given the research and analysis of this report and its accompanying appendices Administration recommends approval of a climate budget approach to be implemented in 2023 for the 2024/2025 Budget because:

- It could be realized for the next budget cycle with reallocation of existing staff resources;
- The climate budget is well aligned with existing information available in the LEC Plan; and
- It focuses efforts to calculate emissions reductions on the most impactful sectors and departments.

The climate budget is an important next step to realize Saskatoon's Climate Action Plan by aligning funding decisions with those emission-reducing actions already identified in the LEC Plan.

A carbon budget is not feasible for implementation in 2024 without consultant resources, staffing support within most departments and broader support and organizational change management. While the carbon budget is not recommended instead of the climate budget for implementation at this time, it could be considered as a later step in the integrated budget process. Some elements of a climate budget, such as identifying carbon impacts (instead of only reductions) of capital requests, could lay the groundwork to graduate to a carbon budget in a phased approach. Furthermore, it is anticipated that operationalization of a carbon budget - including its challenges and benefits - in other municipalities could be better understood later.

Implementation - Goal, Principles and Processes for a Climate Budget

Appendix 4 lays out the goals, principles, and implementation process for establishing a climate budget in Saskatoon. These principles for a climate budget can be embedded into policy going forward by amending the *Multi-year Business Plan and Budget Policy*. The goal of the climate budget would be to turn the City's existing climate commitments, which are established through the Global Covenant of Mayors for Climate & Energy, GHG reduction targets, the LEC Plan, and the Corporate Adaptation Strategy, into funded actions that result in measurable reductions in the short- and long-terms.

This goal can be progressed by adopting the principles for the climate budget; a summary of the principles, detailed in Appendix 4, which include:

1. Alignment with existing GHG reduction targets and the LEC Plan;
2. Integration with the financial budgeting system;
3. Transparency around how climate actions listed in the climate budget, are expected to impact emissions (where possible), in the short- and long-terms;
4. Time-bound to ensure actions proceed according to the approved timelines; and
5. Accountability for the City and each department – the expectation is that every business unit is responsible for the City's collective goal.

Using Oslo as an example, implementing a climate budget in Saskatoon would take the existing phased action plan from the LEC Plan as well as other existing and relevant implementation plans, and identify the cost and responsible department for each action that needs to be completed within the next budget cycle. These actions would then

become funding requests for City Council which would also be summarized into a climate budget document embedded into the financial budget book.

FINANCIAL IMPLICATIONS

It is estimated that it will require approximately 0.5 FTE of existing Sustainability operating staff time to develop the climate budget, redirecting staff scheduled to complete the CAP and GHG inventory in 2023. This resource will support other departments (with GHG estimates and LEC support), collaborate with Finance, develop the climate budget document, and work with solicitors on the development of the policy.

Many departments were identified in the CAP 2021 as responsible for LEC Actions including Technical Services, Facilities Management, Building Standards, Sustainability, Roadways, Fleet, & Support, Saskatoon Transit, Transportation, Water & Waste Operations, Saskatoon Water, Planning & Development, and Saskatoon Light & Power. These departments may bring forward budget requests to further these actions, and Sustainability will continue to support these departments to bring these requests forward as part of a climate budget (if approved). For that reason, work required by the Finance Division and other departments should be similar to work that was already anticipated for developing the financial budget.

If additional activities are requested to grow the climate budget to include actions beyond those listed in the LEC Plan, or to begin work on a full carbon budget, resource needs would be assessed and requested in a future budget cycle.

ADDITIONAL IMPLICATIONS/CONSIDERATIONS

Other work, including the GHG Management Platform and Climate Action Progress Reporting, will continue and align with this work. If approved, a Triple Bottom Line review will be completed as part of the development of the initial climate budget.

An LEC Plan update is planned to commence in 2024 for completion in 2025, which would be integrated with the development of future climate budgets.

COMMUNICATION ACTIVITIES

Internal communications around the climate budget have begun through consultations with all affected departments which will continue throughout development if approved. The climate budget can also be communicated publicly along with the financial budget.

NEXT STEPS

If recommendations are approved, the following next steps will occur:

- Amendments to the Multi-year Business Plan and Budget Policy (C03-036) that reflect the goals, principles, and responsibilities for a climate budget as outlined in this report will be brought to the March 2023 meeting of the Governance and Priorities Committee for approval;
- With support, departments responsible for LEC Plan actions will develop budget requests as outlined in the LEC Plan for the next budget cycles, including cost and GHG estimates to include in the 2024/2025 budget;

- The 2024/2025 climate budget will be developed and integrated into the financial budget book; and
- Look for opportunities to estimate emissions for other activities, especially those that produce a lot of emissions and may have potential for reductions, throughout the budget prioritization process.

APPENDICES

1. Municipal Scan of Climate and Carbon Budget Approaches
2. Climate Budget – From LEC Plan to the Financial Budget
3. Climate Budget – Information Included in the Financial Budget
4. Goals, Principles, and Process for Climate Budgeting

Report Approval

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