

Energy Transition Strategy
1.5 Degree Celsius Update

Edmonton

**Energy Transition Funding
Options**

Prepared by City of Edmonton
edmonton.ca/energytransitionupdate

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INTRODUCTION

The following policy brief examines the funding opportunities and mechanisms required to implement a more ambitious Community Energy Transition Strategy; one that is targeting emissions reductions aligned with staying below a 1.5 degrees Celsius global average temperature increase.

This paper takes the stance that emissions reductions are a public good, and therefore there is a role for public investment. Assuming a cost sharing model between all levels of government, for the purposes of discussion and forecasting, it is suggested that Edmonton would contribute a third of the public investments that are required to catalyze an accelerated low carbon pathway. The remaining portion of public investments would come from the provincial and federal governments respectively. The philosophy applied suggests that the public investment would catalyze at least an equivalent amount or more of private investment, thereby leading to a fully funded transition to a low carbon future. The City mostly uses debt and municipal revenues to fund its portion of energy transition programs.

Edmonton has used municipal debt to finance its long-term capital needs. Financing through debt provides an equitable approach through the distribution of benefits for projects that may extend over multiple years such as Light Rail Transit (LRT) expansion. This approach ensures that existing municipal taxpayers aren't paying for benefits of new infrastructure that may not be fully-realized during their lifetime. Also, the provincial Municipal Government Act (MGA) governs the debt (and debt servicing) limits for Alberta's municipalities. An Alberta municipality cannot exceed its debt to more than 1.5 times its municipal revenue and its debt servicing to more than 0.25 times its municipal revenues. The City of Edmonton has even stricter debt and debt servicing limits that are governed by its Debt Management Fiscal Policy (C203C).¹ Finally, Edmonton only incurs debt for its capital expenditure.

Municipal revenue sources² are used to fund a variety of energy transition actions. Municipal revenue sources are utilized for internal resources, research, programming cost, external advocacy/education, municipal grants and few capital infrastructure projects that meet energy transition objectives. Further, for the limited municipal revenues there are multiple programs and services (including energy transition programs) that compete for similar funds. This limits the number of energy transition actions that can access municipal revenue sources any given year.

The policy brief explores the possibilities for a city like Edmonton to fully realize its energy transition potential. Aside from internal re-prioritization of funding resources to support local energy transition, Edmonton requires funding partnerships between local, provincial, federal and global communities to

¹ https://www.edmonton.ca/city_government/documents/PoliciesDirectives/C203C.pdf

² The City of Edmonton sources of revenue include property taxes, user fees and the sale of goods and services, franchise fees, investment income, government grants, investment earnings, fines and penalties, licensing and permits, and customer and developer contributions. Some sources of revenue, such as capital grants from other orders of government and investment earnings have been dedicated to capital infrastructure either through stipulations in the grants or as a result of City Council resolution.

lead a variety of the energy transition objectives. The partnerships are all important to ensure that the municipal government isn't diverting all its existing (and future) resources to energy transition from its various other social and community programs. So far, Edmonton has been effective in leveraging other public and private funding sources to implement energy transition programs. It has been able to secure \$60 Million annual public (municipal, provincial and federal) investments to achieve around \$140 Million annual investments for energy transition actions. A revised energy transition strategy would mean an aggressive implementation approach. This indicates a greater investment to realize the strategy's potential. Therefore, the following principles will guide the funding recommendations in this brief:

- A. **Increase Private Sector Leadership for Local Energy Transition:** It is estimated that the ten community support programs, modelled within the Energy Transition Strategy will generate on average \$1.3 dollars in private investment for every public dollar spent. It is also expected that a more ambitious approach to energy transition will require a much greater investment. Renewed public policies that are focused on maximizing private investments in local energy transition can possibly reduce this investment deficit.
- B. **Ensure Ongoing Community Programming for Energy Transition:** The Province plays a significant role in providing necessary levers to the community through assured support to reduce their energy demand and emissions. With the uncertainty looming over provincial energy efficiency support, it has become urgent for Edmonton to maintain its support for community focused actions. The proposed funding strategies must lay a special emphasis on increasing the level of community programming support to reduce a possible provincial investment gap.
- C. **One Size Doesn't Fit All Energy Transition Funding Needs:** As previously indicated debt has been used as one mechanism to fund long-term energy transition capital projects such as LRT expansion. However, recently a utility rate funding model was implemented in Edmonton through the Blatchford Renewable Energy Utility. This model is based on the provision of a return on investment for the City through future energy production at Blatchford. This approach is indicative that a "one size fits all" funding model cannot support all the funding needs for the planned actions. Factors such as the type of action, timeline of delivery, return on investment and amount of private investment must be considered before determining the funding for an energy transition action.
- D. **Prioritize Action Delivery Based on Action Impact:** Any realistic funding of energy transition actions will require a means to plan the delivery of the energy transition actions based on its readiness, impact and cost. A primary principle of the revised community energy transition strategy is to use a staggered approach to deliver all of its actions based on their ability to reduce Edmonton's carbon emissions to align with its annual carbon budget.

- E. **Equitable Fund Allocation:** The design and implementation of any energy transition action must be evaluated based on the fairness of the social, economic and environmental consequences of the transition to a carbon-neutral Edmonton. This is important since achieving ambitious emissions reductions will require a significant investment in —transformative changes to energy systems, transportation networks, waste management practices, buildings and neighbourhoods, as well as systems of governance. If these changes are not managed with equity in mind, not all Edmontonians will necessarily benefit from the jobs, improved infrastructure and enhanced quality of life offered by decarbonization.³

The next few sections of the brief focus on an analysis of the current sources of funding; and future funding options for energy transition.

ANALYSIS: CURRENT ENERGY TRANSITION PROGRAM FUNDING

The policy brief next analyzes the existing funding sources to draw a clear picture of mechanism and ways to fund a revised Community Energy Transition Strategy. Most operating expenses for programs and services at the City of Edmonton are funded through its single biggest revenue stream i.e. property taxes. However, capital projects are funded through grants, fees and levies, special reserves, investment revenue and debt.

A high-level comparison of the funding sources for the existing environmental projects to the rest of City programs and services reveals a similar picture. The existing Community Energy Transition Strategy was approved in August of 2015. The City Council approved an initial annual funding of \$2 Million (app.) through Edmonton 2016-2018 Operating Budget. The funds were used to set-up new community programs that included better environmental reporting, education and advocacy, grants/rebates and partnerships. At the same time, Administration tapped into various provincial and federal funding sources to support new capital projects, civic operations retrofits and community projects. Appendix A includes a detailed table with municipal, provincial and federal funding sources that have funded energy transition programs between 2016 to 2022.

Below is a summary of funding received by Edmonton from the different levels of government between 2016-2022.

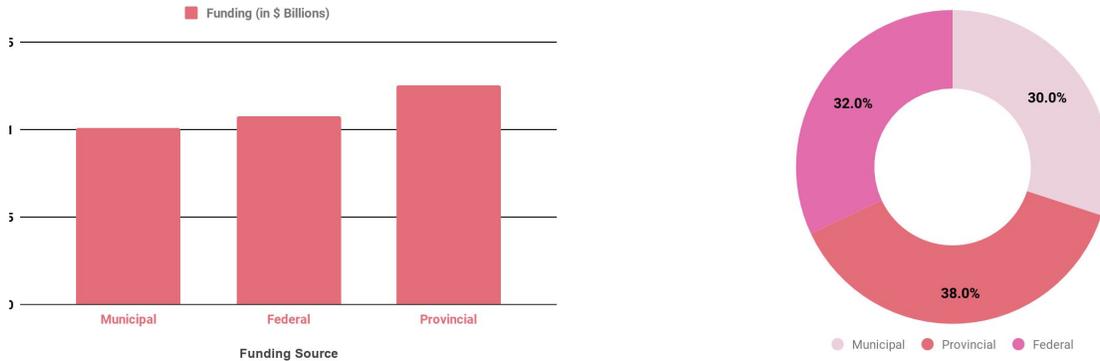


Figure 1: Percentages of 2016-2022 Environmental Program Funding

Prior to 2019, the Provincial government was the largest contributor to energy transition programming with 38 percent of funding coming from the same. It is followed closely by the federal government (34 percent) and municipal government. Between 2016-2022 the three orders of government are planning to invest close to \$ 3.3 Billion in energy transition actions. Is there a funding gap for energy transition?

Based on the Administration's annual cost estimates made in 2014 to implement ten community support programs across building retrofits, electrification of vehicles, installation of solar energy, and industrial process energy improvements, within the existing Community energy transition plan roughly \$60 Million is required annually. A \$60 Million public investment generates \$80 Million in private investments that bring the total cost for energy transition programming to \$140 Million in these sectors. At the time, the cost estimates that were made only considered new programming and it did not include large community scale investments in district energy, light rail transit, walking/rolling/cycling infrastructure, and other urban planning/transportation initiatives.

The pie-chart below shows that 94.8% (\$3 Billion) of the public funding identified has been allocated to public transit (LRT and Electric Buses). This leaves \$166 Million dollars over 7 years for all other energy transition initiatives noted above. Between 2016-2022, it is estimated that \$420 Million of public investment is required to fully implement the planned actions of the existing Community Energy Transition Strategy. This means there is still a gap of \$254 Million in public investments for the same time period.

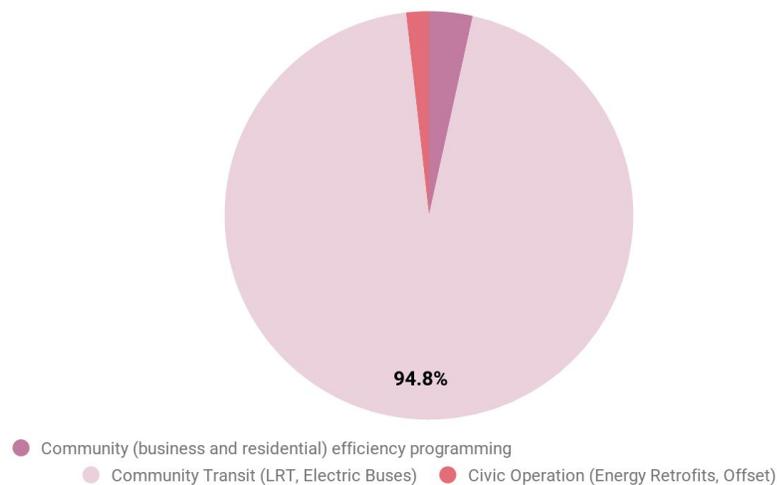


Figure 2: Current Distribution of Energy Transition Funding

To summarize, the following observations emerge from the current funding strategies for Community Energy Transition :

- In past years, the Province has been the largest investor for energy transition followed by the federal and municipal governments respectively, if transit funding is included.
- Majority (94.8%) of public investments have been made in public transit including Light Rail Transit (LRT) and Electric Buses.
- Between 2016-2022, 3.4 percent and 1.8 percent of public investment dollars were allocated to community and civic operations energy transition respectively.
- Between 2016-2022, public investments in community and civic operations have an investment deficit of 68 percent (if we take public transit out of the calculation).

It is estimated that the ten community support programs, modelled within the Energy Transition Strategy will generate on average \$1.3 dollars in private investment for every public dollar spent. It is also expected that a more ambitious approach to energy transition will require a much greater investment. Given there is a funding gap for the current energy transition strategy, if higher degrees of ambition are pursued other sources and mechanisms of funding will be required.

ANALYSIS: REVISED ENERGY TRANSITION PROGRAM FUNDING

A revised energy transition strategy for Edmonton accelerates the reduction in community and civic operations carbon emissions. These initiatives focus on six climate shifts:



Figure 3: Edmonton's Climate Shifts

The six climate shifts require the execution of 23 actions that would make Edmonton a net neutral city by 2050. A fast-tracked implementation plan will mean a higher, more accelerated public investment cost.

The City of Edmonton won't be able to single-handedly fund the higher costs associated with the revised Energy Transition Strategy. Like the existing Energy Transition Strategy creative funding options are required. Public funding through the three orders of government has been the principal contributor for the energy transition actions. However, the recent changes at the Provincial government and the austerity measures has brought its focus back on economic diversification through value addition to a fossil-fuel driven economy. For the City of Edmonton, the provincial changes have the following legislative and financial impacts:

- Cuts in major infrastructure capital funding through the cancellation of the City Charter Fiscal Framework; the introduction of a Local Government Fiscal Framework and the cancellation of the Alberta Community Transit grant.
- Provincial grants in lieu of property taxes have been reduced by \$7 million this year, and an additional \$7 million next year that funds a part of Edmonton's annual operating budget.
- Elimination of future transit funding of \$200 million per year.
- Uncertainty in the future of Energy Efficiency Alberta. Recently, the Provincial government scrapped a series of carbon tax-funded programs that helped businesses and homeowners retrofit their properties and reduce greenhouse gas emissions. Among the programs that have been eliminated are the residential and commercial solar program which provided incentives to businesses and homeowners to install solar panels on their rooftops, and the home improvement program, which offered rebates for new windows, insulation, tankless water heaters and more. Also gone is the online rebate program through which Albertans could submit receipts for new appliances, smart thermostats and other purchases that improve energy efficiency

As previously stated a third of the public funding for energy transition initiatives comes from the Provincial government. Therefore, any provincial cuts will have a significant impact on Edmonton's ability to divert a higher proportion of municipal resources to a revised, more aggressive energy transition plan.

The next section of this brief explores some key principles that must be considered to embrace creative funding for a revised community energy transition plan.

STRATEGIC APPROACH: REVISED ENERGY TRANSITION PROGRAM FUNDING

The previous sections identify the funding challenges for a revised Energy Transition Strategy. The early financial modeling for a revised Energy Transition Strategy indicates an exponential increase in investments (public and private) required to implement Edmonton's transition to carbon neutrality by 2050. New municipal funding challenges have emerged along with the funding challenges that already existed. A few of the foreseeable challenges are:

- Prioritization of energy transition funding to other funding required to maintain the existing level of programs and services while keeping the property tax increase manageable.
- Generate interest and garner support from investors (public and private) to invest in Edmonton with a uncertain political and economic climate in Alberta.
- Managing the funding deficit created through the Provincial funding cuts for energy transition programs.
- Functioning within a stricter legislative climate with the cancellation of the Edmonton City Charter.
- Controlling public debt that aligns with the City's Fiscal Debt Management Policy.

These challenges signal a tougher road ahead for the decision makers at the City of Edmonton. Creative funding for revised Energy Transition Strategy can be defined as:

“Creative funding for the City of Edmonton leverages existing funding solutions while exploring new, unique and diverse funding solutions for the 23 revised Energy Transition Strategy actions. The renewed funding solutions include leadership by the public sector and private sector through partnership, risk-taking and investments.”

A strategic approach was developed to look at creative funding. The explored options have been distributed into two areas of focus:

1. **Public Sector Led Solutions:** These creative funding solutions examine the mechanisms that can be led by the City of Edmonton through investments, partnerships and borrowing.

2. **Private Sector Led Solutions:** These creative funding solutions examine the mechanisms led by the community (including businesses) with City of Edmonton as a partner.

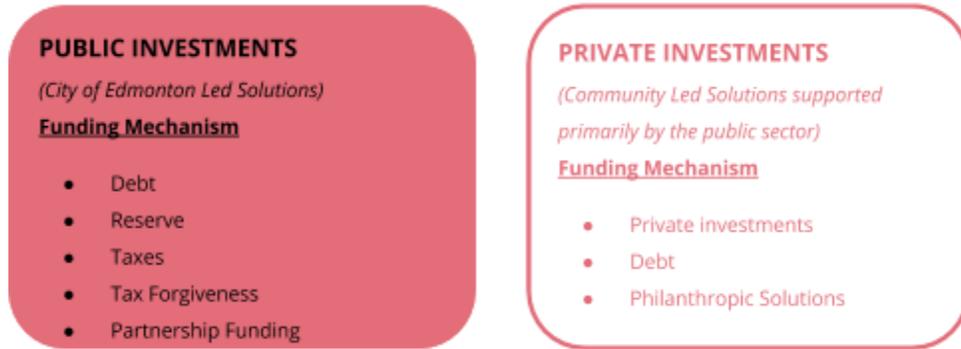


Figure 5: Creative Funding Solutions

PUBLIC INVESTMENTS

GREEN MUNICIPAL BONDS

Green municipal bonds are debt financing instruments that can mobilize resources from domestic and international capital markets for climate change adaptation, renewables and other environment-friendly projects. They are no different from conventional bonds, their only unique characteristic being the specification that the proceeds be invested in projects that generate environmental benefits. In its simplest form, a bond issuer will raise a fixed amount of capital, repaying the capital (principal) and accrued interest (coupon) over a set period of time. The issuer will need to generate sufficient cash flows to repay interest and capital.⁴

Canadian municipal jurisdiction such as Toronto, Vancouver and Ottawa have issued green bonds to raise funding for capital projects. The table below compares the green bonds issued by Toronto, Vancouver and Ottawa.

⁴ <https://www.sdfinance.undp.org/content/sdfinance/en/home/solutions/green-bonds.html>

11 City of Edmonton, Urban Form and Corporate Strategic Development, Energy Transition Funding Options

Toronto Green Bonds	Vancouver Green Bonds	Ottawa Green Bonds
<ul style="list-style-type: none"> • First Issue: 2018; Next Issue: 2019 • Amount Raised: \$300 Million • Yield: 3.213 percent for 30 years • Types of Project: Renewable energy production and distribution; Energy efficiency; Pollution prevention and control and utilizing waste as a resource; Sustainable clean transportation; Sustainable water and wastewater management; Climate change adaptation and resilience; Eco-efficient and/or circular economy principles integration; Green buildings • Application of Funds: The majority of capital projects to be funded by a debenture issued by the City have been completed or substantial completion criteria met. In these common instances, the proceeds of the debenture will be applied directly to the project to repay the City's temporary funding for the project. Where substantial completion has not been met on an Eligible Project, the funds will be held in an account of the City and invested in holdings with maturities aligned with substantial completion of the projects identified in the schedule to the by-law. 	<ul style="list-style-type: none"> • First Issue: 2018 • Amount Raised: \$85 Million • Yield: 3.10 percent for 10 years • Types of Project: Renewable energy; Energy Efficiency; Green Buildings; Clean Transportation; Pollution Prevention and Control; Sustainable Water and Wastewater Management; Environmentally Sustainable Management of Living Natural Resources • Application of Funds: The net proceeds of the City's Green Bond issuances will be used to finance or refinance, in part or full, new and/or existing eligible capital projects across the City of Vancouver that meet the Eligibility Criteria (the "Eligible Projects") as outlined in the Eligibility Criteria. Eligible Projects will include projects that have been completed by the City within 36 months preceding the date of the Green Bond issuance. 	<ul style="list-style-type: none"> • First Issue: 2018 • Amount Raised: \$102 Million • Yield: 3.25 percent for 29 years • Types of Project: Renewable Energy; Energy Efficiency; Pollution Prevention and Control; Clean Transportation; Sustainable Water Management; Sustainable Management of Natural Resources; Climate Change Adaptation and Resilience; Green Buildings. • Application of Funds: As of October 31, 2018, 100% of the total principal amount of \$102 million has been spent on the LRT Stage 2 Project.

Table 1: Comparison of Municipal Bonds: Toronto, Vancouver and Ottawa

A few similarities for the Green Municipal Bonds issued by the three Canadian municipalities:

- Green Municipal Bonds were primarily issued to raise money for existing (debt refinancing) and future major capital green projects such as Light Rail Transit
- All Green Municipal Bonds issues were 2 to 3 times oversubscribed which indicates a strong investor demand.
- Usual yield for a Green Municipal Bond is between 3.1 to 3.2 percent with bond maturity ranging over 10 to 30 years depending on the type of project financed through this mechanism.
- Green Municipal Bonds have managed to raise \$85 Million to \$300 Million for the respective municipality
- Green Municipal Bonds include overhead costs such as the development of green bond framework, legal cost and transparency measures such as validation and reporting on approved "green" projects. The overhead costs can make issuing Green Municipal Bonds cost prohibitive compared to traditional borrowing for a municipality especially when the difference between the borrowing rate is between 10 to 20 Basis Points.
- Municipal decision to invest in Green Municipal Bonds is sometimes driven by the strategic imperatives of its decision makers rather than financial prudence.

Since 1993, the City has borrowed money through the Alberta Capital Finance Authority

(ACFA), Government of Alberta (GoA) utilizing the debt rating of the government of Alberta and combined borrowing volumes across Alberta. Interest rates are established at the time of borrowing and remain constant throughout the term of the debenture. A high-level comparison between borrowing through ACFA and bonds is below:

Borrowing through GoA	Borrowing through Bond Issuance
<ul style="list-style-type: none"> • Very little administrative cost required for borrowing money through GoA • Interest rates (3.367% and 3.007% in December 2018 for 30 years and 10 years respectively) • Non-partnership based funding model provides flexibility to fund a variety of capital projects. 	<ul style="list-style-type: none"> • Higher internal administrative costs such as legal cost, establishment of a sinking fund and re-establishing a promissory note program. • Interest rates (3.213% (Toronto) and 3.10% (Vancouver) in 2018 for 30 years and 10 years respectively) • Any projects funded through Infrastructure Ontario (Ontario's equivalent of GoA) are delivered through a P3 model that restricts the type of funding.

Table 2: Comparison for Edmonton to Borrow through GoA and Municipal Bond

For Edmonton, the competitive rate of interest, low administrative cost and flexibility to fund a variety of capital projects make borrowing through GoA a financially advantageous option. However, with the recent drop in the Province's credit rating, borrowing through Green Municipal Bonds may become feasible in the future. Green Municipal Bonds:

- can provide Edmonton an opportunity to prioritize its accelerated energy transition initiatives through a dedicated funding source;

- help better alignment with Edmonton’s strategic goal, “Edmonton is a city transitioning to a low carbon future, has clean air and water and is adapting to a changing climate.”; and
- support long-term, high cost capital projects such as the LRT when other sources of revenue are delayed or stopped.

Green Municipal Bonds

- *Policy Statement: Develop an Edmonton framework for Green Municipal Bonds. This framework allows Edmonton to explore the type and extent of energy transition actions that can be funded through this mechanism. It also establishes the process and guidelines for setting-up a transparent system of selection, monitoring and reporting on green projects funded through green municipal bonds.*
- *Type of Funding: Borrowing*
- *Payback: Debt Servicing*
- *Climate Shift: Climate Shift 2: Low Carbon City and Zero Emission Transportation*
- *Possible Application: Capital Infrastructure Projects such as LRT, Electric Buses, Bike Lane Network, Electric Vehicle Charging Infrastructure, Energy Retrofits in City Buildings, etc.*

ALBERTA GREEN LOAN GUARANTEE PROGRAM

Energy Efficiency Alberta offers a Green Loan Guarantee Program where it has earmarked \$400 Million dollar to reduce lending risks for financial institutions. The program reduces the lender’s risk for borrower’s default by 50%. The program focuses on commercial and industrial emitters by providing better financing terms to the borrowers. Green loans can be offered in areas of energy efficiency, renewable energy and clean technology. For 2019-2020, the Green Loan Guarantee program offered \$20 Million in loan guarantees that catalyzed \$40 Million in private investments.

A green loan guarantee reduces the risks for a lender who would otherwise be unwilling to offer an energy efficiency loan due to a longer payback period, limited lender knowledge/experience on green loans and uncertainty on measurable energy efficiency achieved through a green loan. However, a green loan is an effective tool to accelerate green investments by the private investor. The program also benefits the local economy through job growth in operation, maintenance, installation of energy retrofits as well as production of energy retrofit products.

Alberta Green Loan Guarantee

- *Policy Statement: Work with partner organization/s to develop and implement a City of Edmonton green loan guarantee program.*
- *Type of Funding: Operating Revolving Fund/Reserve (Seed funding by the City), Private Lender*
- *Payback: Loan Repayment*
- *Climate Shift: Climate Shift 3: Emission Neutral Buildings*
- *Possible Application: Commercial and industrial building energy efficiency retrofits, deep green emission reduction in buildings (including negative emissions)*

ENERGY SAVINGS RESERVE FUND

In 2003, the Government of Alberta launched the “ME first!” program in support of its action plan on climate change. It was intended as a four-year, \$100 million interest-free loan program administered by Climate Change Central that was designed to help municipalities:

- achieve energy savings;
- reduce greenhouse gas emissions; and,
- replace conventional energy sources with renewable or alternative sources.

As a recipient of the funding, the City of Edmonton created a municipal reserve/revolving fund for energy saving through building retrofits to redistribute the savings to new projects. However, the fund couldn't replenish itself due to challenges with tracking and measuring the energy cost savings through retrofits. To some extent, the 2019-2030 Civic GreenHouse Gas Management Plan has alleviated the measuring and reporting challenges for energy retrofits.

Energy Savings Reserve Fund

- *Policy Statement: (1) Develop a energy savings measurement and evaluation framework that includes facility level utilities budgeting, energy use forecasting and more robust monitoring and verification at the energy conservation measure level; and (2) Develop Energy Savings Reserve Fund Policy to implement the energy savings measurement and evaluation framework.*
- *Type of Funding: Operating Revolving Fund/Reserve created through energy savings from retrofitted buildings*
- *Payback: Annual energy savings cost*
- *Climate Shift: Climate Shift 3: Emission Neutral Buildings*
- *Possible Application: City owned existing and new buildings.*

ENERGY TRANSITION: CAPITAL BUDGET

The City of Edmonton currently has no mechanism to prioritize the resourcing needs for energy transition projects. This is due to a lack of availability of the necessary tools and resources for the City Council to make informed environmental decisions as well as dedicate financial resources to energy transition projects.

Some factors that influence Edmonton's current funding strategy for resource allocation include demands for economic growth, matching partner funding (from other orders of government), lower borrowing rates, cheaper labour and material cost, renewal/rehabilitation timeline for infrastructure, and capacity of funding options.

Sources such as Pay-As-You-Go⁵, Community Revitalization Levy (CRL)⁶, etc can be explored as a possible option to dedicate resources and/or prioritize investments in energy transition projects as a part of Edmonton's capital funding strategy.

Edmonton's ability to reduce its carbon emission relies on the City's ability to prioritize projects that have the biggest impact on its carbon emissions and then allocate the financial resources to these projects.

Energy Transition: Capital Budget

- *Policy Statement: (1) Develop a Carbon Accounting Framework, a decision-making tool for the City of Edmonton to prioritize environmental projects based on their impact on the city's carbon emission; and (2) Evaluate City's existing funding strategy to dedicate and prioritize capital budget resources to energy transition actions.*
- *Type of Funding: Debt and Revenues (Investment, Property Taxes)*
- *Payback: Property Tax (Uplift), Energy Savings, Utility Rate*
- *Climate Shifts: Climate Shift 1: Tools and Targets, Climate Shift 2: Low Carbon City and Zero Emission Transportation, Climate Shift 3: Renewable Revolution, Climate Shift 6: Negative Emissions*
- *Possible Application: All energy transition projects that require capital investments*

⁵ Pay-As-You-Go (PAYG) funding is largely made available from annual investment/dividend income, with some portion of the funds received through property taxes. Investment volatility can greatly impact the total amount of funding available in a given year. PAYG is a vital component of the City's funding strategy, since it is used to pay for the costs grant-funded projects incur that are not eligible for reimbursement under federal and provincial grant funding rules. To maximize the use of grant funding, it is necessary to have an unconditional funding source to address the grant eligibility gaps.

⁶ A Community Revitalization Levy (CRL) is the funding source the City can use to dedicate future property tax revenue in a specific area to pay for a new public facility or new infrastructure. A CRL can be used to fund public projects designed to encourage new development and revitalize a specific part of the city. A new public project or investment in infrastructure encourages private sector investment that otherwise would not occur. The resulting new development generates tax revenue that would otherwise not occur, and raises property values within the area. The Community Revitalization Levy (CRL), for example, was used to fund construction of the new downtown arena and help to spur new development in the central core of the City.

PROPERTY TAX DEFERRAL PROGRAM

The provincial government recently passed a new Property Tax incentive bill (Bill 7). This bill amends the Municipal Government Act (MGA) and enables municipalities the flexibility to control the timing and mechanism to implement property tax by passing a bylaw that:

- offers incentives to reduce, exempt or defer the collection of non-residential property taxes for up to 15 years, with an option for renewal; and,
- establishes an eligibility criteria and application process to streamline tax incentive offers, instead of requiring a separate council resolution or bylaw for each property.

This bill could potentially be used to advance some of the City's key strategic initiatives including energy transition actions. Also, a regional approach to reduce carbon emissions can be developed in partnership with Alberta Industrial Heartland Association (AIHA) and Edmonton Metropolitan Region Board (EMRB).

Property Tax Deferral Program

- *Policy Statement: Recommend new and modify existing programs to leverage Bill 7 to incentivize commercial and industrial deep green emission reductions.*
- *Type of Funding: Private Investment*
- *Payback: Property Tax (Deferred)*
- *Climate Shift: Climate Shift 3: Emission Neutral Buildings*
- *Possible Application: Commercial and industrial building energy efficiency retrofits, deep green emission reduction in buildings (including negative emissions)*

CLEAN ENERGY IMPROVEMENT PROGRAM

The Clean Energy Improvement Program (also referred to as 'CEIP') allows a municipality to provide residential and non-residential property owners with access to low-cost capital through the Alberta Capital Financing Authority (ACFA) for the financing of energy efficiency and renewable energy upgrades to properties that is ultimately recovered through the owner's property taxes. This is Alberta's approach to deliver Property Assessed Clean Energy (also referred to as 'PACE') financing.

The benefits of this program include Greenhouse gas reductions; energy cost savings; local job creation; infrastructure investment; and better public health. The City of Edmonton will borrow \$11.25 million from Alberta Capital Financing Authority to finance an expected⁷ 35 concurrent applications (10 commercial/ 25 residential).

Clean Energy Improvement Program (PACE)

- *Policy Statement: (1) Continue to support Clean Energy Improvement Program through the implementation of program pilot in 2020.*
- *Type of Funding: Debt*
- *Payback: Property Tax*
- *Climate Shift: Climate Shift 3: Emission Neutral Buildings*
- *Possible Application: Residential, commercial and industrial building energy efficiency retrofits.*

LOW CARBON CITIES CANADA (LC3) FUND

The Government of Canada recently announced a \$22 million contribution to Alberta Ecotrust Foundation to support low-carbon solutions in Edmonton. The contribution is part of the \$183 million investment to the Federation of Canadian Municipalities for Low Carbon Cities Canada (LC3), part of the Collaboration on Community Climate Action portfolio announced in Budget 2019.⁸ To manage the endowment fund, a local LC3 centre will be created that will partner with many Edmonton stakeholders to accelerate and scale local projects that are in alignment with the City's Energy Transition Strategy.

Cities play a major role to address climate change as half of Canada's carbon emissions originates from sources such as buildings and industry. The LC3 approach provides the capacity, capital, and risk tolerance necessary to remove barriers to the adoption of new technologies, policies, and financial tools that can reduce urban carbon emissions.⁹

⁷ If borrowed funds are not fully allocated at the expected levels with 35 concurrent files there may be opportunity for additional participants.

⁸

<https://albertaecotrust.com/alberta-ecotrust-foundation-receives-22-million-for-edmonton-climate-solutions/>

⁹

<https://albertaecotrust.com/alberta-ecotrust-foundation-receives-22-million-for-edmonton-climate-solutions/>

Low Carbon Cities Fund

- ***Policy Statement:*** (1) In partnership with Alberta Ecotrust Foundation, the City will identify and implement commercial and industrial projects that can support deep energy retrofits; (2) In partnership with Alberta Ecotrust Foundation, the City will identify and implement opportunities for renewable energy production; and (3) Support open and transparent LC3 reporting for local benefits such as public health, good jobs and improved social equity.
- ***Type of Funding:*** Federal Endowment Fund
- ***Payback:*** Economic Growth
- ***Climate Shift:*** Climate Shift 4: Renewable Revolution
- ***Possible Application:*** Energy efficiency in buildings (commercial, industrial and residential) and renewable energy generation.

ECONOMIC DIVERSIFICATION PROGRAMS FUND

Provincial and federal agencies such as Emission Reductions Alberta, Natural Gas Innovation Fund (NGIF) and Western Diversification partner with businesses, not-for-profits and industries. They invest in technologies, to reduce GHG emissions and help innovators address barriers to accelerate toward commercialization. In turn, these endeavours diversify the local economy through research, pilot and scale-up of new value chain opportunities in clean and renewable energy. A brief description of the three agencies is below:

1. **Western Diversification:** The programs supported by Western Diversification include:
 - **Advanced Manufacturing Supercluster:** Reimburses up to 44.4% of eligible costs for projects (\$1 Million - \$20 Million) on projects like advanced robotics, machine learning, 3D printing and the Internet of Things.
 - **Strategic Innovation Fund:** Funds technology commercialization across various organizations (SMEs, incubators/accelerators, academic and research institutions, and large corporations).
 - **Impact Canada Challenge Hub:** A grant or contribution to cover some or all of the costs related to developing an innovative solution for a specific government challenge.
 - **Project Example:** Western Diversification invested \$1.4 Million in C³P technology that will produce clean renewable natural gas (RNG) by taking biogas, derived from raw landfill waste from the City of Vancouver's landfill facility, and turning it into clean energy.
2. **Natural Gas Innovation Fund (NGIF):** Created by the Canadian Gas Association (CGA) to support the funding of cleantech innovation in the natural gas value chain. NGIF seeks to fill a technology development gap in the natural gas sector and invest in innovation enabling natural gas

solutions for current and emerging challenges facing Canada's energy system.

- Focus natural gas value chain opportunities for NGIF:
 1. **Natural Gas Production:**
 - a) Fugitive emissions, methane capture and recycling; venting mitigation technologies; wellbore monitoring (methane).
 - b) Carbon capture, utilization and storage (CCUS) including CO2 capture systems.
 - c) Efficient processes and equipment. Integration of renewable energy.
 2. **Natural Gas Transmission:** Fugitive emissions, methane capture and recycling.
 3. **Natural Gas Distribution:** CO2 capture system technologies; Net zero carbon home technologies; Renewable natural gas (RNG) Generation; Integration of Renewable Energy with Natural Gas Generators.
- Project Example: (1) \$3 Million Cleantech Competition directed at the Production of Natural Gas. (2) \$2.8 Million in grants and in-kind, for the testing and demonstration of G4 Insights' PyroCatalytic Hydrogenation (PCH) Technology.

Emission Reduction Alberta (ERA): ERA works with industry, government, and technology developers to make Alberta a hub for innovative ideas that reduce GHG emissions and improve economic competitiveness. It funds and de-risks late-stage technologies to reduce GHG emissions and help grow and create competitive industries in Alberta.

- ERA Opportunities
 - a. **Grand Challenge:** Seeks technologies to transform CO2 from waste to value.
 - b. **Methane Challenge:** New methane detection and reduction technologies.
 - c. **Oil Sands Innovation:** Late-stage, GHG-reducing technologies to help Alberta's oil sands industry remain competitive
 - d. **Industrial Efficiency Challenge:** Technologies to increase efficiencies for Large Final Emitter (LFE) industrial facilities
 - e. **Best Challenge:** GHG-reducing technologies in biotechnology, electricity and sustainable transportation
- Project Example: ERA invested \$1.4 Million to support a \$3m feasibility study which focuses on carbon capture and storage (CCS) at the Lehigh Cement's Edmonton Plant.

Economic Diversification Programs Funds

- *Policy Statement: (1) Leverage economic diversification programs funds to pilot municipal and community emission reduction projects that also support the local businesses.*
- *Type of Funding: Grants*
- *Payback: Economic Sector Diversification*
- *Climate Shifts: 1) Climate Shift 4: Renewable Revolution, 2) Climate Shift 6: Negative Emissions*
- *Possible Application: Alternative fuels, Carbon Capture, Carbon Storage.*

CANADIAN INFRASTRUCTURE BANK

The Canada Infrastructure Bank (CIB) was created in 2017 with an ambitious goal: to advance a new partnership model in Canada that can transform the way infrastructure is planned, financed and delivered. The four target sectors for CIB include Public transit, trade and transportation, and green infrastructure.

The Bank's focuses on partnerships with the private sector that allow large revenue-generating infrastructure projects to break ground, especially those that would be unlikely to proceed without federal backing

The federal government provided an initial investment of \$35 Billion to CIB. Out of the \$35 Billion at CIB, \$15 Billion is considered non-recoverable (Equity) and the rest will be allocated as loans (Debt) to provinces, territories and municipalities. The loan terms differ based on project duration, risk and clients. For example: Montreal LRT received its loan at ultra low rates (\$1.28-billion investment over a 15-year senior secured loan at a rate starting at 1% escalating to 3% over the term of the loan). Other funded projects include Metrolinx Expansion and Richmond District Energy Project

In 2017, CIB was involved in five new projects – more than \$3.25-billion committed – and has announced it has an additional 25 projects that are currently under consideration.

Canadian Infrastructure Bank

- Policy Statement: Explore opportunities to finance capital-intensive energy transition projects through CIB
- Type of Funding: Federal Loan (and Equity stake)
- Payback: Debt Servicing
- Climate Shifts: Climate Shift 2: Low Carbon City and Zero Emission Transportation, Climate Shift 3: Renewable Revolution
- Possible Application: Long range capital projects such as LRT and District Energy

PRIVATE INVESTMENTS

The following section of the policy brief focuses on driving private investments. These investments are either administered through the provincial and federal governments; or through philanthropic and for-profit private sector agencies. A sample of funding agencies and associated highlights has been provided in Appendix B of this brief.

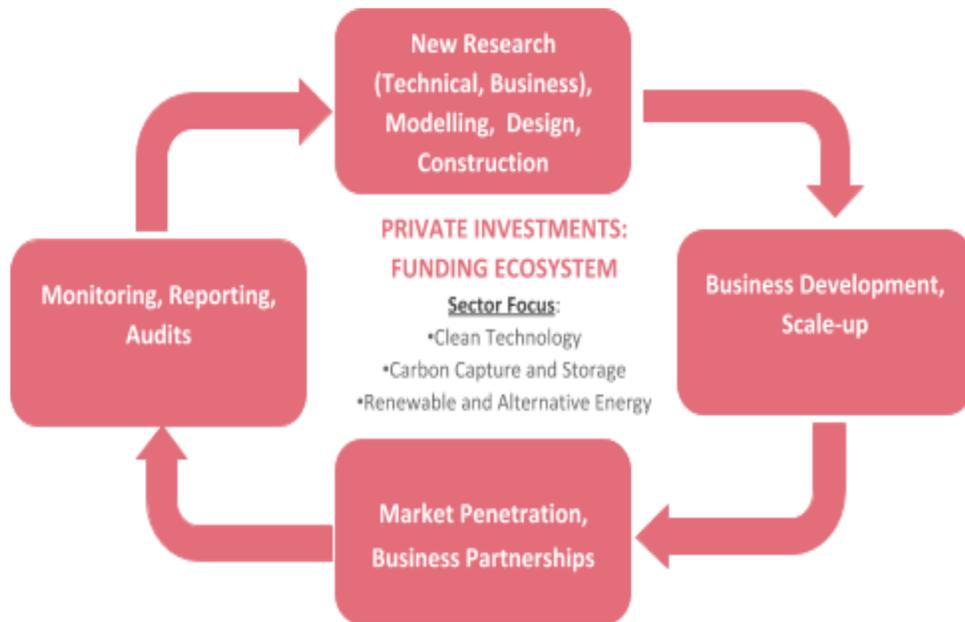


Figure 6: Private Investments Funding Ecosystem

Figure 6 shows the funding ecosystem for private investments. Private investments are implemented through a partnership-based model where businesses and investors jointly share the responsibility for a business's success. Public investments such as loans, grants and equity stakes act as catalysts for private businesses to generate further interest in a new technology and/or a product. The investment approaches used for clean technology, Carbon Capture and Storage (CCS), and renewable/alternative energy follow the same investment and risk principles as any other private investment in a new/emerging sector. The private investments funding ecosystem for Clean Tech, CCS and renewable energy investments support the lifecycle of product/service development, marketing, implementation and reporting. These investments can be broadly categorized into 4 elements:

1. **New Research, Modelling, Design and Construction:** This includes market, technical and resource development research support for clean technology and renewable energy sector companies. Also, private investment occurs in project conception and execution stages for modelling, design and construction of energy efficiency projects such as energy retrofits and geoexchanges. Most public, private and philanthropic investors provide research, modelling, design and construction support. Investors include CoPower Green Bonds, CleanTech Practice (Business Development Bank), Green Building Technology Network: Smart Sustainable Resilient Infrastructure Association (SSRIA), CDP Matchmaker Program, Metcalf Foundation, Funders Network and McConnell Foundation.
2. **Business Development and Scale-up:** Federal and provincial government supported agencies provide primary investment (grants and loans) support for business development to clean technology start-ups. They do this by reducing the upfront risk for scaling-up a new technology; providing shared resources for the development and commercialization of new products and services; and providing non-dilutive funding to implement plans and connection to other leveraged funding. Examples of public sector agencies supporting business development and scale up include Low Carbon Economy Fund, Alberta Innovates and Business Development Canada (BDC).
3. **Business Partnerships and Market Penetration:** Access to new markets and building product/service value chains through integrations help clean tech companies further consolidate their footprint as innovators in their respective markets. Low Carbon Economy Fund, Export Development Canada, Smart Sustainable Resilient Infrastructure Association (SSRIA) and CDP Matchmaker Program are some examples of organizations that support this aspect of the clean technology ecosystem.
4. **Monitoring, Reporting and Audits:** Energy efficiency audits, productivity and growth monitoring and industry performance reporting ensure optimized use of investments. These also function as catalyst for new and targeted investment. Most investors function in this space that

include Smart Sustainable Resilient Infrastructure Association (SSRIA), Alberta Innovates, Metcalf Foundation, Funders Network and McConnell Foundation.

Private Investments

- *Policy Statement: 1) Collaborate with local business to educate and advocate private investment opportunities; and 2) Explore renewable, clean energy and CCS opportunities for the City of Edmonton to participate in pilot and scale-up private partnerships;*
- *Type of Funding: Private Investment*
- *Payback: Economic Sector Diversification*
- *Climate Shifts: Climate Shift 2: Low Carbon City and Zero Emission Transportation, Climate Shift 3: Renewable Revolution, and Climate Shift 6: Negative Emissions*
- *Possible Application: Community led project in energy efficiency*

CONCLUSION

For Edmonton, insufficient funding is one of the biggest obstacles to achieving an accelerated pace for energy transition. Other challenges such as Alberta's current economic climate; the Provincial government's shifting economic priorities; competing priorities for municipal financial resources; limitations on municipal borrowing; and absence of a large pool of private philanthropic investment for municipal energy transition are factors that further obstruct Edmonton's path to carbon neutrality. Engaging private industry in maximizing investment in reducing emissions as a means of cost avoidance or to accrue return on investment is also a challenge as projects often do not meet the hurdle or churn rates of these organizations.

In the recent past, numerous Canadian private investors have forayed into clean technology and renewable energy sectors. Although societal good through energy transition may be a factor that has influenced a strong private investment in these sectors, other factors such as return on investment within a defined investment horizon and the opportunity to diversify the shareholder portfolio to generate higher returns remains the most significant drivers. Therefore, unlike public sector investments in energy transition, private sector investments would unlikely occur purely to reduce the impacts of global warming.

Investments by the public sector in energy transition have also evolved. While it remains true that for governments the moral obligation to reduce carbon emissions is the primary driver, the economy and

environment are no longer considered separate. Most governments see energy transition as a transformational tool for creating an economy for the future. Also the global markets are repositioning themselves and if cities are to be prosperous they will need to be part of this trend. The adaptation to climate change is helping governments build a resilient local economy through new sectors and opportunities.

In conclusion, Edmonton’s funding options for a revised community energy transition strategy requires a continued focus on energy efficient civic operations; equitable implementation of community focused projects; investments from public and private change makers; and finally, the leadership from its community and business leaders to build a carbon neutral city. This would require prioritized public investments, innovative private funding, and new industry partnerships.

APPENDIX A : CURRENT ENERGY TRANSITION PROGRAM FUNDING

The following table outlines 2015 to 2022 municipal funding related to energy transition (only direct funding is ascertained as indirect funding or the achievement of emissions reductions through co-benefits is not highlighted):

Funding Source	Service	Description	Cost
City of Edmonton's Operating Budget (2016-2022)	Green Energy Purchase	Will put the City on a trajectory to the 100% requirement, with this funding bringing the City to a point of purchasing approximately 60% of the City's electricity requirements through carbon free sources by 2022	\$19 Million
	Community Energy Transition Plan	Funding used for the implementation of the Energy Transition Plan. The funding be used to match and maximize funding that is currently available and anticipated to increase from other levels of government to support Alberta's Climate Leadership Plan and the federal Pan Canadian Framework on Climate Change and Clean Growth.	\$35 Million
	Blatchford Redevelopment Debt Servicing	To budget for debt servicing for Debt approved as part of Blatchford Profile.	\$10 Million
Municipal (Operating) Total			\$64 Million
	Electric Bus	The project requests funding for 15 Electric Buses and 9 Charging Stations. The will bring City's total to 40 electric buses better meets GHG and criteria air contaminant (CAC)	\$25 Million

City of Edmonton's Capital Budget (2016-2022)		emission reduction targets..	
	Roots for Trees	Supports the annual planting of 45,000 native trees and shrubs as well as 5,000 native flowering perennials in parks and roadways throughout the city with continued partnership with businesses, residents and community groups.	\$1.5 Million
	LED Street Light Conversion	Replace 46,000 high pressure sodium luminaires with LED in order to contribute to environmental stewardship (lower greenhouse gas emission), financial savings (maintenance and power), and innovation (use of technologies).	\$20 Million
	On-Site Microgeneration Solar Photovoltaics	The accelerated deployment of on-site microgeneration solar photovoltaics on City buildings and sites will reduce corporate GHG emissions by 10,000 tonnes by 2030. It is also anticipated to have positive financial returns over the lifetime of the assets.	\$16.5 Million
	Valley Line LRT Funding	This project provides funding requirements for detailed design, land acquisition, and construction of the Mill Woods to Lewis Estates LRT line. Also included in this project is the purchase of light rail vehicles and construction of a LRT maintenance facility. (in partnership from other orders of government)	\$854.7 Million
	Blatchford	Funding for the first stage of construction at Blatchford as well as the next stage of planning and design for the site	\$24.44 Million
Municipal (Capital) Total			\$942 Million
Federal Grants	Federal - Investing In Canada Plan: Public Transit & Green Infrastructure streams	The federal government will contribute up to \$948 million for the Valley Line West and up to \$127 million for the Metro Line LRT extension from NAIT into Blatchford	\$1.075 Billion
Federal Total			\$1.075 Billion
	Climate Leadership Plan	The previous provincial government committed up to \$1.04 billion for the Valley Line West LRT and up to \$131 million for the Metro Line Northwest LRT	\$1.171 Billion
	Alberta Community Transit Fund:	To purchase upto 19 electric buses	\$15.5 Million

Provincial Grant	Electric Bus Purchase	Terwillegar Transit Facility: Construction, Planning and Bus Purchase: Electric (Up to 9)	\$24.612 Million
	Municipal Climate Change Action Centre (MCCAC): Alberta Municipal Solar Program	Partially funded various solar panel installations at City facilities	\$160,500
	Municipal Climate Change Action Centre (MCCAC): Taking Action to Manage Energy (TAME)	Partially funded the energy efficient retrofits at City facilities	\$1.116 Million
	Energy Efficiency Alberta - Community level not through the City	Subsidized energy retrofits at community-level (residential and businesses) to reduce community energy consumption	\$39.974 Million
Provincial Total			\$1.252 Billion

charts by design

APPENDIX B: PRIVATE INVESTMENT OPTIONS FOR REVISED ENERGY TRANSITION STRATEGY

Name of the Investment	Description	Investment Highlights	Target Sector
CoPower Green Bonds (Vancity Community Investment Bonds)	Green Bonds are backed by clean energy projects that earn steady returns from energy savings or the sale of clean energy (ROI-5% annual return to investors)	<ul style="list-style-type: none"> \$12,033,174 in debt financing to a portfolio of LED lighting retrofits in over 338 condo buildings across Ontario, Alberta and BC \$3,476,359 to four operational solar projects across Ontario, including a community-owned solar project in the Eastern Ontario township of McNab-Braeside Working with GeoTility, a Kelowna-based geoechange project developer, CoPower is financing geoechange 	<ul style="list-style-type: none"> Residential Community Energy Efficiency Renewable Power Generation

		systems in 658 residential homes in two communities.	
Export Development Canada (EDC) Green Bonds	Green bonds issued by EDC have raised \$2 Billion for green projects and initiatives within Canada. It's estimated these efforts have helped to avoid more than four million tonnes of greenhouse gas emissions.	<ul style="list-style-type: none"> In 2019, EDC raised \$500 Million through green bonds to go toward EDC's portfolio of green assets, including loans made to companies active in fields of preservation, protection or remediation of air, water and or soil, creation of renewable energy, and mitigation of climate change. 	<ul style="list-style-type: none"> Climate Change Adaptation Climate Change Mitigation
CleanTech Practice - Business Development Canada (BDC)	<p>Supports capital-intensive needs of scaling and accelerating business growth. The practice offer equity and flexible financing to cleantech firms with:</p> <ul style="list-style-type: none"> A commercially validated IP-protected technology demonstrating a positive environmental impact Proven market traction with significant potential for revenue growth and commercial contracts The ambition to scale beyond \$100 million in annual revenue A clear pathway to profitability 	<ul style="list-style-type: none"> In 2018, the Government of Canada announced BDC will invest \$700 million over the next five years to grow Canada's clean technology industry. BDC has concluded agreements totaling \$40-million with four high-potential cleantech companies, enabling them to accelerate their growth and further consolidate their footprint as innovators in their respective markets. 	<ul style="list-style-type: none"> Clean Technology
McConnell Foundation	McConnell Foundation is a private Canadian foundation that develops and applies innovative approaches to social, cultural, economic and environmental challenges. We do so through granting and investing, capacity building, convening, and co-creation with grantees, partners and the public.	<ul style="list-style-type: none"> \$600,000 grant to Clean Energy Canada to develop a 'Clean Energy Progress Index' to rank provincial (AB, BC, QC) progress toward clean energy and demonstrate which provinces have policies which can 	<ul style="list-style-type: none"> Environmental education, advocacy, research and capacity building.

		<p>be replicated elsewhere.</p> <ul style="list-style-type: none"> • \$525,000 grant to Canadian Economy Fund (CEF) to partner with the Canadian Energy Efficient Alliance to shift industry norms and building codes related to energy efficiency. The CEF will also use funds from the Foundation to undertake communications campaigns in three provinces (Alberta, Ontario and British Columbia) as well as at the national level. 	
Social Enterprise Fund - Edmonton Community Foundation	<ul style="list-style-type: none"> • Social Enterprise Fund (SEF) is a loan fund. Options include Mortgages, bridge financing and loans to scale the enterprise. • Interest rates range from 1 percent to 3 percent over the prime rate. 	<ul style="list-style-type: none"> • SEF supported the launch of Sustainvial (The world's first green carnival) with operating capital. • SEF's growth capital loan allows Sustainitech (a matchmaking business — matching revolutionary, sustainable technologies with challenges faced by communities and companies across North America.) to adapt technologies for their clients' needs 	<ul style="list-style-type: none"> • Community education and advocacy
Commercial Banks (Bank of Montreal and Scotiabank)	<p>Includes lending, investing, financing and advisory, as well as investments in the Bank's direct operations and communities where it operates to reduce the impacts of climate change. Initiatives including renewable energy, energy efficiency, emissions reduction, green buildings, sustainable transportation, infrastructure resilience, biodiversity conservation, pollution prevention and control, waste management and/or sustainable water and</p>	<ul style="list-style-type: none"> • BMO Sustainable Financial Network: \$500 Billion ((By 2025) • Scotiabank Climate Commitment: \$100 Billion (By 2025) 	<ul style="list-style-type: none"> • Community and Business led environmental project funding/partnerships

	land use.		
Green Building Technology Network: Smart Sustainable Resilient Infrastructure Association (SSRIA)	<p>Led by SSRIA and currently funded by Alberta Innovates, the Green Building Technology Network (GBTN) provides funding towards collaborative projects submitted by its members that support the following objectives:</p> <ul style="list-style-type: none"> • Achieve a path to energy consumption reduction, 40% greenhouse gas (GHG) emission reduction by 2030 and a regional zero carbon built environment by 2050. • Integrate new clean technologies and/or design approaches that support energy conservation and/or enhanced building performance in actual buildings (new or retrofit). • Model, monitor, measure and analyze data from actual building performance. • Upgrade professional development and/or skills in the AEC sector relating to these clean technologies and/or design innovations. 	<ul style="list-style-type: none"> • SSRIA received \$3 Million from Alberta Innovates (Clean Technologies Fund) for the Green Building Technology Network project. This project includes packages focused on energy efficiency innovations, monitoring and measuring these innovations in a portfolio of green buildings and a skills upgrading program called the FutureSkills Network. • SSRIA is in the process of securing further funding from Western Diversification to support GBTN. 	<ul style="list-style-type: none"> • Community energy efficiency and capacity building.
<p>Alberta Innovates Programs focused on:</p> <ul style="list-style-type: none"> • Carbon Capture and Storage • Renewable and Alternative Energy 	<ul style="list-style-type: none"> • Carbon Capture and Storage (CCS):The Carbon Capture and Utilization program supports Alberta SMEs with technologies that convert carbon dioxide into useful products with significant 	<p>1)CCS grants are disbursed in partnership with Emission Reduction Alberta: Examples include:</p> <ul style="list-style-type: none"> • \$3 Million ERA funding to a \$20 Million to pilot a new carbon capture plant at Husky Energy that significantly reduces the cost of 	<ul style="list-style-type: none"> • Negative emissions, alternative fuels and renewable energy projects

	<p>commercial value. Focus areas: carbon capture, carbon storage and hydrogen utilization.</p> <ul style="list-style-type: none"> • Renewable and Alternative Energy Program: Supports invests in renewable and low-carbon electricity while maintaining a reliable and affordable grid system. The program focuses on grid modernization, low carbon electricity and low-energy alternative generation. 	<p>captured carbon to \$30-\$50 per tonnes. This cost is half of current costs to capture carbon with conventional liquid-based approaches.</p> <ul style="list-style-type: none"> • ERA is in negotiations for a \$15 Million funding (for a \$38 Million project) with Cenovus, in partnership with Shell and Devon, to explore innovative molten carbonate fuel cell (MCFC) technology for carbon capture from oil sands operations. MCFC is well suited for oil sands operations, and generates electricity and water in addition to capturing carbon dioxide. <p>2) \$2.8 Million invested by Natural Resources Canada (NRCan), the Natural Gas Innovation Fund (NGIF), Alberta Innovates (AI), ATCO and FPInnovations in an innovative clean energy start-up company, G4 Insights Inc., has successfully demonstrated in a field trial that forestry industry residues can be turned into renewable natural gas (RNG).</p>	
<p>Carbon Landscape (Metcalf Foundation)</p>	<p>Carbon Landscapes has a two-track funding strategy to advance natural climate solutions across Canada:</p> <ol style="list-style-type: none"> 1. Build sector capacity, intellectual leadership, and public understanding of natural climate solutions to enable 	<ul style="list-style-type: none"> • In partnership (\$90,000) with Wahkohtowin, Brinkman Climate, and the Northeast Superior Regional Chiefs' Forum, to develop a forest carbon project for the Chapleau Crown Game Preserve; first year 	<ul style="list-style-type: none"> • Community leadership, education and advocacy on negative emissions (carbon sinks)

	<p>greater action at both the policy and community levels; and</p> <p>2. Support a targeted set of on-the-ground protection, restoration, and stewardship efforts that benefit biodiversity, sustain livelihoods, and mitigate climate change.</p>	<p>of three-year commitment</p> <ul style="list-style-type: none"> In partnership (\$35,000) with Nature Conservancy of Canada organize a conservation finance conference in 2020 with a goal to showcase practical approaches to mainstreaming conservation finance in Canada – first year of two-year commitment 	
<p>CDP Matchmaker</p>	<p>Matchmaker provides subscribers with information on climate resilient infrastructure projects worldwide through a specialized project dashboard derived from the unique CDP Cities disclosure platform and our partners. The benefits to participating cities includes:</p> <ul style="list-style-type: none"> Showcase relevant projects to improve potential for investment and implementation Receive assistance linking economic development with climate and sustainability efforts Consultation assistance to detail projects and improve disclosure quality overall 	<p>CDP and the Sustainable Infrastructure Foundation (SIF) signed a cooperation agreement to enhance coordination between the SIF's SOURCE platform and CDP Matchmaker.</p> <p>The coordination aims to achieve the organizations' shared goal of closing the estimated USD\$5-6 trillion infrastructure investment gap, preparing cities and their citizens for impending environmental risk.</p> <p>Through the cooperation agreement, CDP and the SIF aim to strengthen the ability of cities to develop climate-resilient infrastructure projects and to communicate those</p>	<p>Investment solutions for large municipal infrastructure projects such as LRT, District Energy, etc.</p>

		projects to the financial sector.	
Green! (Funders Network)	<ul style="list-style-type: none"> GREEN! facilitates funder learning and strategic initiatives and collaborations that advance sustainable, equitable, and prosperous regions and communities by increasing resource efficiency and sustainable infrastructure, protecting public and environmental health, expanding urban sustainability practices, and enhancing the affordable green housing field. GREEN! supports work in three areas: 1) Connecting Funders – linking funders to support their information exchange and joint learning; 2) Aligning Funders – linking funders to create and share a set of ideas, goals, and strategies; and 3) Producing – linking funders to support strategic collaborations, joint projects, special initiatives, and other projects 	<ul style="list-style-type: none"> Not Available 	<ul style="list-style-type: none"> Investment solutions for large municipal infrastructure projects such as LRT, District Energy, etc.
Low Carbon Economy Fund	<p>Low Carbon Economy Fund Enables retrofits in government owned and supported affordable housing units, prioritizing units requiring retrofits identified through energy efficiency audits. Eligible building retrofits include: - exterior doors and windows; - attic, exterior wall and basement insulation; and - heating, cooling, water and lighting systems.</p>	<p>\$9 Million (\$37.1 Million calculated on per capita basis for Edmonton)</p>	<ul style="list-style-type: none"> Community Energy Retrofits

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