



Home Retrofit Policy Analysis



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PROJECT OVERVIEW

About 18% of Hamilton and Burlington's overall carbon emissions come from heating, cooling and powering our homes, apartments, and commercial buildings. The pathway to a low-carbon future involves transitioning our existing buildings off fossil fuels and undertaking deep energy retrofits on a massive scale. At the same time, we need to build new structures to a zero carbon standard.

In order to meet both cities' climate goals to become carbon neutral communities by 2050 and to complete these retrofits in a timely and widespread manner, a home retrofit program is necessary.

This analysis seeks to assess policies that encourage and support home retrofits, in order to provide recommendations to the City of Burlington and City of Hamilton on undertaking a program of its own. To do so, this report completes:

1. **Landscape Analysis** - Reviewing different types of retrofit programs found in municipalities around the world to understand the pros and cons of each option.
2. **Cost Benefit Analysis** - Assessing popular retrofit options on the basis of cost and greenhouse gas impact.
3. **Local Context Analysis** - Reviewing local factors, such as market readiness, which may impact a local incentive program.

These three forms of analysis serve to inform policy development and ensure resources are used efficiently. Stemming from this analysis, this report provides specific recommendations for the City of Burlington and City of Hamilton to adopt successful retrofit programs.

EXECUTIVE SUMMARY

This analysis seeks to assess policies that encourage and support home retrofits. Herein, we complete a Landscape Analysis, reviewing different types of retrofit programs found in municipalities around the world to understand the pros and cons of each option. Next, we provide a Cost Benefit Analysis, assessing popular retrofit options on the basis of cost and greenhouse gas impact. Finally, we offer a Local Context Analysis, reviewing factors, such as market readiness, which may impact a local incentive program.

These three forms of analysis serve to inform policy development and ensure resources are used efficiently. Stemming from this analysis, this report provides specific recommendations for the City of Burlington and City of Hamilton to adopt successful retrofit programs.

A program designed with these recommendations in mind will:

- Incentivize retrofit projects with high emission reductions
- Efficiently allocate limited resources
- Promote a just transition by providing low-barrier access to retrofits
- Promote transparency and consumer choice
- Instill market confidence for retrofits
- Promote high uptake
- Prevent unintended harm to tenants
- Ensure low complexity program design
- Promote equity for low income homeowners
- Fill gaps in existing retrofit incentives
- Provide a 'gateway retrofit' for hesitant homeowners
- Avoid consumer choice overload (overchoice)

The Bay Area Climate Change Council supports the City of Hamilton and the City of Burlington adopting retrofit programs that follow the following recommendations.

Summary of Recommendations

1. Utilize the local improvement charge (LIC) incentive model for a retrofit incentive program, as opposed to non-repayable grants, rebates, or municipal tax incentives.
2. Offer up to \$10,000 to cover air sealing services, the purchase and installation of air source heat pump(s), and any electrical service upgrades required to install the technology.
3. Make the incentive available to those wishing to leverage more than one retrofit incentive program (ie. NRCan's Greener Homes program).
4. Do not require energy audits for access to the program.

5. Create a contractor registry, where only projects completed by registered contractors are eligible for funding. Require proof of a 313A or 313D license and proof of liability insurance to register.
6. Require applicants to submit proof of ASHP sizing and proof of work completion to the municipality, with the chance that City staff may visit the property within 6 months post-completion to confirm changes visible from the exterior of the home..
7. Set the retrofit program pilot to be in place for no less than FIVE (5) years to instill confidence in the market.
8. Provide minimum product standards instead of specific product lists for eligible funding.
9. Take program measures to prevent unintended harm to tenants.
10. Consider Ontario Disability Support Program (ODSP) recipients by seeking approval of the program director for written approval of the retrofit program loans, similar to Ontario Renovates.
11. Inform participating homeowners of projected impacts to utility bills to avoid any surprises and ensure informed consent.
12. Leverage the private sector for uptake and marketing.
13. Provide 3-6 months notice of program details to suppliers, contractors, wholesalers, realtors, HVAC associations and the like prior to the launch of a retrofit program.
14. Work with local hydro providers to formulate a plan for increased electrical servicing for heat pump technology.
15. Leverage and adapt existing LIC resources from other municipalities and organizations to hasten the rollout process and minimize personnel capacity burden.
16. Support the establishment of a retrofit delivery centre to help homeowners navigate various retrofit incentive programs.
17. Prioritize later stage roll out of additional retrofit programming for multi-residential buildings.
18. In the event that there is widespread uptake of air source heat pumps and air sealing, this program model can be applied to other forms of retrofit projects at a later date.

COST BENEFIT ANALYSIS

COST BENEFIT ANALYSIS

A basic cost benefit analysis of retrofits is included herein, to inform policy development and ensure resources are used efficiently.

This cost benefit analysis (CBA) is based on a model using clear, transparent assumptions, listed below. This CBA reveals key lessons that can be applied to any retrofit program. This report will provide further analysis that explains why the lessons from this CBA should be applied to a particular form of retrofit program.

This CBA is based on a model with following assumptions:

Model Assumptions
Assumptions regarding the model home used herein, in terms of size, consumption, technology, and fuel inputs.
Natural gas used is 203 m³ per month in Ontario, meaning 2436 m ³ per year and about 91 GJ of natural gas per year.
Based on the above averages, as well as actual consumption data from local residents that match the average, about 1600 m ³ of gas is used for furnace (space heating) and 700 m ³ of gas used for water heater per year.
Model home gas furnace is 60% efficient; an upgraded furnace would be 90% efficient.
Model home uses natural gas for heat (space and water).
The symbol (*) in the analysis signifies the home uses fuel oil instead of natural gas for heat

Price and GHG Assumptions		
Assumptions regarding the cost of fuel inputs, along with their equivalence in CO ₂ emissions.		
Price*	kg CO ₂ e	Fuel Input
\$21.83+~9.3 cents/m³+~11.95 cents/m³+~0.97 cents/m³+~3.99 cents/m³+~7.83 cents/m³	2.5	natural gas
10.342 cents/kwh +(25 cents+ ~0.405 cents/kWh)+(\$28.24+ ~1.9 cents/kWh)	0.15	electricity
89 cents/L	3.34	fuel oil

*=see Appendix D for price methodology

Energy Assumptions	
Assumptions regarding the efficiency and inputs for assorted technologies	
0.5	estimated kWh used by furnace and blower per m ³ or litre burned
60%	estimated factor for insulation project
3.94	estimated heat pump kWh per m ³ or litre burned
84%	estimated factor for upgrading furnace
99.5%	estimated factor for upgrading window

99.5%	estimated factor for replacing door
95.0%	estimated factor for air sealing
7.35	estimated electric water heater kWh per m ³
70%	estimated factor for upgrading to tankless water heater
3.68	estimated heat pump water heater kWh per m ³
95.0%	estimated factor for insulating tank
10%	conservative predicted use of natural gas furnace when properly sized heat pump is installed

Based on the assumptions included above, BACCC has completed a basic cost benefit analysis of a number of popular retrofit options, in order to understand their relative impact on GHGs, energy consumption, and cost.

The retrofit options assessed below include installing a heat pump, upgrading a furnace, air sealing, insulation, among others listed along the left hand column.

Table 1 - Fuel inputs of the model home, before and after each retrofit option.

Retrofit Project	current use at home			post retrofit estimate		
	gas	fuel oil	kWh	gas	fuel oil	kWh
gas furnace to heat pump full switch	1,600	0	800	0	0	6,300
gas furnace hybrid heat pump	1,600	0	800	160	0	5,750
upgrade furnace	1,600	0	800	1,347	0	674
upgrade window	1,600	0	800	1,592	0	796
replace door	1,600	0	800	1,592	0	796
air sealing	1,600	0	800	1,520	0	760
fuel oil to heat pump full switch*	0	4,237	800	0	0	6,300
Fuel oil hybrid heat pump*	0	4,237	800	0	424	5,750
electric water heater	700	0	350	0	0	5,145
tankless gas water heater	700	0	350	490	0	245
heat pump water heater	700	0	350	0	0	2,573
insulate existing gas heater	700	0	350	665	0	333
insulate attic	1,600	0	800	1,586	0	784
insulate exterior walls	1,600	0	800	960	0	480

Table 2 - Project cost, project lifespan, and changes in fuel consumption of the model home after each retrofit option.

Retrofit Project	information on retrofit		change in consumption for year 1		
	useful years	project cost	net gas m ³	net fuel oil	net kWh
gas furnace to heat pump full switch	12	\$9,000	-1,600	0	5,500+
gas furnace to hybrid heat pump	12	\$9,000	-1,440	0	4,950+
upgrade furnace	15	\$6,000	-253	0	-126
upgrade window	30	\$600	-8	0	-4
replace door	30	\$1,000	-8	0	-4
air sealing	30	\$1,000	-80	0	-40
fuel oil to heat pump full switch*	12	\$9,000	0	-4,237	4,700 +
Fuel oil hybrid heat pump*	12	\$9,000	0	-3,813	4,950+
electric water heater	12	\$1,000	-700	0	4,795+
tankless gas water heater	20	\$2,000	-210	0	-105
heat pump water heater	10	\$2,500	-700	0	2,223+
insulate existing gas heater	30	\$100	-35	0	-18
insulate attic	30	\$2,000	-14	0	-16
insulate exterior walls	30	\$8,000	-640	0	-320

Table 3 - Reduction in GHG emissions of the model home after each retrofit option and the marginal cost of abatement for each project.

Retrofit Project	emissions change in year 1 in kg CO ₂ e				\$ per CO ₂ e
	gas	fuel oil	kWh	total reduction	Marginal abatement cost (MAC)
gas furnace to heat pump full switch	-4,000	0	825 +	-3,175	\$2.83
gas furnace to hybrid heat pump	-3,600	0	743+	-2,857	\$3.10
upgrade furnace	-632	0	-19	-651	\$9.22
upgrade window	-20	0	-1	-21	\$28.57
replace door	-20	0	-1	-21	\$47.62

air sealing	-200	0	-6	-206	\$4.85
fuel oil to heat pump full switch*	0	-14,152	825+	-13,327	\$0.68
Fuel oil hybrid heat pump*	0	-12,735	743+	-11,992	\$0.75
electric water heater	-1,750	0	719	-1,031	\$0.96
tankless gas water heater	-525	0	-16	-541	\$3.70
heat pump water heater	-1,750	0	333	-1,417	\$1.76
insulate existing gas heater	-88	0	-3	-90	\$1.11
insulate attic	-35	0	-2	-37	\$54.05
insulate exterior walls	-1,600	0	-48	-1,648	\$4.85

Table 4 - Impact on resident energy bills for the model home after each retrofit option in 2021.

	Impact on 2021 Consumer Hydro Bill	Impact on 2021 Consumer Gas Bill	Impact on 2021 Consumer Fuel Oil Bill
Retrofit Project			
gas furnace to heat pump full switch	\$86.55 more per month	\$45.38 less per month	N/A
gas furnace to hybrid heat pump*	\$80.75 more per month	\$40.84 less per month	N/A
upgrade furnace	\$29.82 less per month	\$7.18 less per month	N/A
upgrade window	\$28.53 less per month	\$0.23 less per month	N/A
replace door	\$28.53 less per month	\$0.23 less per month	N/A
air sealing	\$28.91 less per month	\$2.27 less per month	N/A
fuel oil to heat pump full switch*	\$78.11 more per month	N/A	\$314.24 less per month
Fuel oil hybrid heat pump*	\$80.75 more per month	N/A	\$282.82 less per month
electric water heater	\$79.11 more per month	\$19.85 less per month	N/A
tankless gas water heater	\$31.43 less per month	\$5.96 less per month	N/A
heat pump water heater	\$51.96 more per month	\$19.85 less per month	N/A
insulate existing gas heater	\$28.68 less per month	\$0.99 less per month	N/A

insulate attic	\$28.71 less per month	\$0.49 less per month	N/A
insulate exterior walls	\$31.81 less per month	\$18.15 less per month	N/A

Note: cost reflects prices in the model, subject to change from market forces and carbon pricing.

Table 5 - Projects ranked in terms of highest GHG reduction in Year 1 of the retrofit.

Projects ranked by CO ₂ e Reduction		
Rank	Retrofit Project	CO ₂ e kg
1	fuel oil to heat pump*	-13,327
2	Fuel oil hybrid heat pump*	-11,992
3	gas furnace to heat pump full switch	-3,175
4	gas furnace to hybrid heat pump	-2,857
5	insulate exterior walls	-1,648
6	heat pump water heater	-1,417
7	electric water heater	-1,031
8	upgrade furnace	-651
9	tankless gas water heater	-541
10	air sealing	-206
11	insulate existing gas heater	-90
12	insulate attic	-37
13	upgrade window	-21
14	replace door	-21

Table 6 - Projects ranked in terms of highest installation cost of the retrofit.

Projects ranked by Install Cost		
Rank	Retrofit Project	\$
1	fuel oil to heat pump full switch*	\$9,000
2	gas furnace to heat pump	9,000
3	Fuel oil hybrid heat pump*	9,000
4	gas furnace to hybrid heat pump	9,000
3	insulate exterior walls	8,000
4	upgrade furnace	6,000
5	heat pump water heater	2,500

6	tankless gas water heater	2,000
7	insulate attic	2,000
8	replace door	1,000
9	air sealing	1,000
10	electric water heater	1,000
11	upgrade window	600
12	insulate existing gas heater	100

Table 7 - Projects ranked in terms of lowest marginal abatement cost (the cost to reduce 1kg of CO₂e).

Projects ranked by MAC (\$ per kg CO ₂ e)		
Rank	Retrofit Project	\$
1	fuel oil to heat pump*	0.68
2	Fuel oil hybrid heat pump*	0.75
3	electric water heater	0.96
4	insulate existing gas heater	1.11
5	heat pump water heater	1.76
6	gas furnace to heat pump full switch	2.83
7	gas furnace to hybrid heat pump	3.10
8	tankless gas water heater	3.70
9	air sealing	4.85
10	insulate exterior walls	4.85
11	upgrade furnace	9.22
12	upgrade window	28.57
13	replace door	47.62
14	insulate attic	54.05

With consideration to the federal government's plans to increase the carbon price to \$170 per tonne of CO₂, analysis was conducted for 2030 cost projections to determine the approximate cost borne on consumers.

Table 8 - Estimated impact on resident energy bills for the model home after each retrofit option in 2030.

	Impact on 2030 Consumer Hydro Bill	Impact on 2030 Consumer Gas Bill	Impact on 2030 Consumer Fuel Oil Bill
Retrofit Project			
gas furnace to heat pump full switch	\$94.34 more per month	\$82.48 less per month	N/A
gas furnace to hybrid heat pump*	\$88.02 more per month	\$74.23 less per month	N/A
upgrade furnace	\$32.50 less per month	\$13.05 less per month	N/A
upgrade window	\$31.10 less per month	\$0.42 less per month	N/A
replace door	\$31.10 less per month	\$0.42 less per month	N/A
air sealing	\$31.51 less per month	\$4.13 less per month	N/A
fuel oil to heat pump full switch*	\$85.14 more per month	N/A	\$471.57 less per month
Fuel oil hybrid heat pump*	\$88.02 more per month	N/A	\$424.41 less per month
electric water heater	\$86.23 more per month	\$36.10 less per month	N/A
tankless gas water heater	\$34.26 less per month	\$10.83 less per month	N/A
heat pump water heater	\$56.64 more per month	\$36.10 less per month	N/A
insulate existing gas heater	\$31.26 less per month	\$1.80 less per month	N/A
insulate attic	\$31.29 less per month	\$0.72 less per month	N/A
insulate exterior walls	\$34.67 less per month	\$32.99 less per month	N/A

Note: cost reflects prices in the model, subject to change from market forces and inflation.

It is evident that the increased carbon price in 2030 has inflated the cost for fossil fuel energy, such as natural gas and fuel oil. When factoring inflation of 9% (a 1% increase every year) as well as the carbon charge, natural gas prices are on average 82% higher in 2030 than in 2021, and fuel oil charges are about 53% higher. Carbon pricing will increase by around 150% compared to 2021 (a 2.5x increase), so a disproportionate increase in the price of natural gas and fuel oil is expected (see Appendix D for detailed explanation and methodology).

Generally speaking, the charts above demonstrate that retrofit measures will have vastly different cost implications for homeowners in the next decade, in large part due to carbon pricing.

Savings on Carbon Charges as a Result of Retrofit Installation

To demonstrate the savings resulting from the retrofit installation, the savings from forgone federal carbon charges are considered, though it should be noted that there are many other charges in natural gas and factors affecting fuel oil prices that would result in greater savings. Federal carbon charges are considered because it explicitly relates to the goal of reducing carbon emissions.

Below, we review the cost impacts of several retrofit projects, based on carbon charges (please see Appendix D for full breakdown of carbon charges).

Gas furnace to heat pump full switch

According to previously calculated estimations on yearly consumption of natural gas, our model household consumes 1,600 m³ of natural gas using a gas furnace. With a full switch to a heat pump, users will be using electricity and effectively eliminating their natural gas consumption. As such, it is estimated that users can save around \$3,102.08 between the years 2022 and 2030 in carbon charges alone.

Gas furnace hybrid heat pump

According to previously calculated estimations on yearly consumption of natural gas, our model household consumes 1,600 m³ of natural gas using a gas furnace. With a hybrid pump, users will be primarily using electricity and using only 10% of their previous natural gas consumption, estimated to be 160 m³ each year. As such, it is estimated that users can save around \$2,791.87 between the years 2022 and 2030 in carbon charges alone.

Air sealing

Air leakage is where air (either hot or cold) either enters or escapes a building. With air leakage, efforts to heat or cool the home require more energy. Air sealings effectively eliminate this leakage and the subsequent natural gas charges associated with it. As a result, it is estimated that users can save around \$3,102.08 between 2022 and 2030 in carbon charges alone.

Fuel oil to heat pump full switch

According to previously calculated estimations on yearly consumption of fuel oil, our model household is estimated to consume 4,236.84 litres of fuel oil when using an oil furnace every year. With a full switch to a heat pump, users will be using electricity and effectively eliminating their fuel oil consumption. As such, it is estimated that users can save around \$9,768.88 between the years 2022 and 2030 in carbon charges alone.

Fuel oil hybrid heat pump

According to previously calculated estimations on yearly consumption of fuel oil, our model household is estimated to consume 4,236.84 litres of fuel oil when using an oil furnace every year. With a hybrid pump, users will be primarily using electricity and using only 10 percent of their previous fuel oil consumption. The average yearly consumption of fuel using a hybrid heat pump was previously estimated to be 423.7 litres each year. As such, it is estimated that users can save around \$8,792.33 between the years 2022 and 2030 in carbon charges alone.

Important Considerations

The basic cost benefit analysis presented above can be used to inform retrofit policy development and ensure resources are used efficiently. Before the data is interpreted, it is important to consider the following.

The Rule of Stacking

It is easy to look at the retrofit measures listed above, select a few options, and add up the GHG reductions listed to arrive at a total reduction projection, but that would be seriously misguided.

The idea that we can 'stack' retrofit measures ignores an important recognition of baseline comparison. Here's an example.

STACKING	
Retrofit Project	GHG reduction
gas furnace to heat pump full switch	-3,175
insulate exterior walls	-1,648
Total (<i>incorrect</i>)	-4,823

If a homeowner decided to insulate their walls and install a heat pump for space heating, one might expect to see a reduction in CO₂e of 4,823 kg. Unfortunately, this would not be the case.

The savings listed for each individual project are predicated on consumption patterns of the model home. The model home used natural gas for space heating. This means that if a homeowner insulates their walls, with no other measures, they would reduce their consumption of natural gas and thereby their emissions by about 1,648 kgs. However, if that same homeowner decides to go a step further and switch their space heating from natural gas to a heat pump, which uses electricity, the GHG savings from insulation drop substantially, since the

insulation is no longer reducing natural gas consumption. As a result, the total emission reduction of these two measures would be less than 4,823 kg of CO₂e, contrary to what we might assume.

What does this mean as we interpret the data above? It means we ought to be wary of blindly stacking measures with the GHG totals presented. The sections that follow will include recommended approaches to addressing this rule of stacking.

Embodied Emissions

The CBA above does not take into consideration the embodied carbon emissions of each retrofit project. Each project involves its own GHG emissions, based on the materials, shipping, and waste associated with the technology switch. The embodied carbon emissions were not included in this CBA because they can vary widely, depending on the products selected, making it difficult to quantify in a generalized model.

For example, different insulation products greatly affect the embodied carbon of a retrofit. Fiberglass batt (fluffy pink insulation) has significantly lower embodied emissions compared to Extruded Polystyrene (XPS) and spray foam insulation, which are petroleum-based products that require high energy inputs to manufacture and include HFC as a blowing agent, which is itself a harmful greenhouse gas.

What does this mean as we interpret the data above? The net emission reductions of each retrofit project may be lower than what is stated in the charts above, because the charts do not reflect embodied emissions. The embodied emissions would be a one-time deduction, from the emissions reduction of each project shown above (see section on Discounting below for further nuance). The sections that follow will include recommended approaches to addressing embodied emissions in a retrofit program.

Discounting

If a retrofit project will reduce emissions by 1,000 kgs of CO₂e per year, and the technology will last 8 years, is it fair to say its lifetime emissions reduction will be 8,000 kgs of CO₂e? No, it is not. This is where discounting comes into play.

Discounting refers to the valuation of an item at different points in time. Applied to retrofits, discounting refers to how much value we place on emissions reductions that are expected to be realized in the years after the project has been completed.

There are reasons to discount emissions reductions the farther away they are projected to occur from the project installation date. For one, there are no guarantees the technology used for the project will live out its full useful life. We simply can't guarantee that the heat pump we install

today will be removed in 10 years, as opposed to the projected lifespan of 12 years. Secondly, our energy inputs are not static. The carbon intensity of our electricity grid may change (and in fact, is likely to get dirtier with the decommissioning of Ontario nuclear plants) in the years to come, thereby changing the emission reductions of each project. Moreover, should there be a switch to green fuels (like natural gas to hydrogen), the projected emissions savings may never materialize.

In practice, discounting could be applied to devalue the projected emission reductions by 10% (as an arbitrary example) each year after the project is complete to account for the uncertainty.

What does this mean as we interpret the data above? The CBA presented herein shows the changes in emissions for the *first year* after the retrofit only, because there is near certainty that those reductions will materialize. The sections that follow will include recommended approaches to addressing discounting in a retrofit program.

Takeaways

There are a number of clear takeaways from the CBA presented, that can inform the policy development of any retrofit program.

1. ***Some retrofits options do not have a significant GHG impact.*** As per Table 5, some of the retrofit options barely reduce emissions, such as replacing windows and doors.
2. ***The exact same retrofit technology can have vastly different GHG impacts when the baseline is fuel oil, as opposed to natural gas.*** As per Table 5, switching to a heat pump reduces emissions by 13,327 kg if the home initially used fuel oil for space heating. However, the very same heat pump would reduce emissions by 3,175 kg if the home initially used natural gas for space heating. The baseline matters.
3. ***A retrofit project's marginal abatement cost (the cost to reduce 1 kg of CO₂e) varies based on project cost and GHG reductions.*** As per Table 7, each project requires a different level of investment to result in 1 kg of CO₂e reduction. This speaks directly to the efficient allocation of spending; in purely economic terms, it is less efficient to spend more money on the same end result (in this case a reduction in emissions). As shown in Table 7, one could spend about \$48 to reduce 1 kg of CO₂e by replacing a door, or they could spend about \$2 to reduce 1 kg of CO₂e by switching to a heat pump water heater. The difference rests in the overall cost of the project and the relative GHG emission reductions that follow.
4. ***Some projects result in lower overall energy bills for residents, while others do not.*** Depending on how energy consumption shifts as a result of the retrofit, consumer energy bills will inevitably change. In some cases, the changes result in overall less expensive energy costs, while in others, the overall cost for energy goes up. It is important to note that energy costs are not static and future changes to energy costs (like the impact of an increased carbon price) make a sizable impact.

LANDSCAPE ANALYSIS

LANDSCAPE ANALYSIS

Types Of Programs

Retrofit programs can take several forms. In this section, we briefly review four basic forms of programs and municipal examples of each.

Local Improvement Charges (LICs)

LICs are special temporary charges that are added to a property tax bill to pay for improvements that benefit the property owners.

This is how a retrofit LIC would work, in a nutshell:

1. The homeowner receives financing and pays for the retrofit measures
2. The homeowner repays the loan through regular, low interest charges added to the property tax bills.
3. The loan is tied to the property and can be transferred to the new owner if and when the home is ever sold.

Pros

- Deep cuts to GHG emissions from residential homes
- Makes whole home retrofits affordable to a larger population of homeowners
- Access to favourable loan terms, otherwise unavailable to homeowners
- Low income households, with few collateral assets or limited access to credit, will be able to qualify for financing
- Loan is tied to the property, not to its owner, which can incentivize homeowners to take energy efficiency measures that are otherwise not cost effective over the time they anticipate owning the home
- LIC loans are low risk for the municipality: if loan repayments go in arrears, the overdue amount can be recovered from the property using a special priority lien. This lien takes precedence over other liens on the property, including mortgage liens
- LIC loans are recoverable and therefore do not count toward a municipality's debt, as far as provincial legislation is concerned

Cons

- High start up costs upfront for municipalities
- Time and personnel capacity in the city is required
- Mortgage lenders and insurers express concern over the senior lien position of LIC relative to the mortgage and because the Canadian Mortgage and Housing Corporation (CMHC) has not historically extended mortgage insurance to cover LIC loans.
- Real estate concerns for resale with lien on the home

Examples

Toronto, Ontario - Home Energy Loan Program (HELP)

- In 2014, the City of Toronto launched the Home Energy Loan Program (HELP) for houses and the High-rise Retrofit Improvement Support Program (Hi-RIS) for multi-unit residential buildings.
- As of June 2019, almost \$14.9 million in financing has been committed to projects with over 187 homes and 15 buildings (2,200 units) participating in the program
- How it works:
 - All property owners on title must consent to participate, and the property tax and utility payments to the city must be in good standing. The program also requires written consent from a mortgage lender.
 - Up to \$75,000 available
- An average project achieved a 30% reduction in energy use and 28% reduction in greenhouse gas emissions.
- After 5 years of program operation, the HELP and Hi-RIS programs have not achieved the level of uptake needed for the City of Toronto to achieve its GHG reduction targets
- Program has not experienced a single loan default so far (as of Winter 2021)
- Avg wait time of 4 weeks to hear back after completing pre-evaluation with TO
- Applicants have the option of receiving an initial disbursement of funds (30%) prior to completing their project to pay for materials or secure a contractor (i.e. security deposit).
- Problems:
 - Limited marketing of the program meant that many homeowners were not aware of the program or its benefits.
 - Mortgage lender consent has been a key barrier to program participation.
 - Note: Mortgage lender consent is not a requirement under Ontario Regulation 322/12. However, CHEERIO's 2013 Local Improvement Charge (LIC) Financing Program Design for Residential Buildings in Ontario report recommended requiring written consent from all lenders holding liens on the property to prevent disputes. Roughly half of the City of Toronto's HELP applicants failed to qualify due to challenges in receiving consent from mortgage lenders

Melbourne, Australia - 1200 Buildings Program

- The 1200 Buildings Program aims to encourage the environmental retrofit of around two thirds of the municipality's commercial stock.
- Since 2010, the savvy owners of over 540 commercial office buildings in Melbourne have retrofitted to improve energy and water efficiency.
- Eligibility: Owners and managers of commercial buildings within the City of Melbourne's municipal boundaries.
- An environmental upgrade agreement is a tripartite contract between a building owner, a bank and the City of Melbourne. When the agreement is established, the lending body

(bank) forwards the retrofit loan to the owner. The City of Melbourne then collects the loan repayment through a rates charge (the amount funded is declared by the Melbourne City Council as an environmental upgrade charge), and finally passes it back to the bank. Council rates and charges take precedence over mortgages as charges against property. This means any debt owing to Council will take priority, thereby greatly reducing the risk for banks.

San Francisco, California - Property Assessed Clean Energy program (PACE)

- In San Francisco's commercial Property Assessed Clean Energy program (PACE), property owners can secure 100% financing from an investor of their choice, and repay the cost of the upgrade over time through a special line item on their property tax bill.
- Financing through two third party partners with the City
- No down-payment and no minimum credit score
- Verified contractors and consumer protection
- Supported by the City and County of San Francisco

An extensive, detailed guideline for LIC policy formulation and implementation can be [found here](#).

Grant/Rebate Program

Non-repayable grants offered to homeowners to cover some or all of the costs of retrofits, thereby incentivizing the energy savings.

Pro

- No payback required for homeowners

Cons

- Not accessible to low-income owners who cannot afford the initial cost of retrofits or the remaining balance, should the grant not cover the cost entirely
- Limited number of retrofits, based on what the municipality can afford to offer for grant funding
- Limited depth of GHG savings, based on what the municipality can afford to offer for grant funding
- High cost to municipalities, potentially adding to municipal debt
- Time and personnel capacity in the city is required

Examples

Vancouver, British Columbia - Heritage Energy Retrofit Grant

- The Heritage Energy Retrofit Grant is designed to encourage and enable deep energy retrofits and greenhouse gas (GHG) emissions reductions while respecting the heritage fabric and character-defining elements of participating homes in Vancouver
- The Heritage Energy Retrofit Grant is available to qualifying pre-1940 or homes on the City of Vancouver Heritage Register that meet eligibility requirements and successfully complete the application package.
- Participants in the Heritage Energy Retrofit Grant program may access a grant of up to \$10,000 to contribute to the costs of recommended retrofits
- Heritage Energy Retrofit Grants are variable and based on a program calculation of \$150 per tonne of GHG emission reduction per year for the estimated lifetime of the retrofit.

Chicago - Retrofit Chicago Residential Partnership

- Provides free energy efficient fixtures, such as programmable thermostats and showerheads, as well as rebates on larger appliances, like qualifying air conditioners, to homeowners while helping them identify trusted energy efficiency assessment contractors.

Edmonton - Building Energy Retrofit Accelerator

- Rebate program that provides financial incentives for energy efficiency upgrades to commercial and institutional buildings.
- The program offers financial rebates on the purchase and installation of select energy-efficient equipment.
- Rebates are determined in a prescriptive manner, meaning that the rebate amount is per unit (fixture, sensor, ton, hp) and the rebate is determined by the number of units installed.
- For projects that do not include installation of a heat pump, a rebate cap of \$75,000 applies to the project.
- For projects that include installation of a heat pump, a rebate cap of \$125,000 applies to the project.

Vancouver, British Columbia - Home Renovation Rebate Program Top Up

- In January 2021, the City of Vancouver announced a limited time (3 month) program to offer homeowners a rebate for heat pump installation
- This program was available on a first-come, first-served basis, while funds last
- The city offers an additional incentive to top-up the CleanBC Better Homes and Home Renovation Rebate Program participants that switch from a fossil fuel heating system to an electric air source heat-pump
- The top up allows residents to receive up to \$2,000 or \$6,000 for installing a heat pump and \$500 for electrical service upgrades
- Must fully switch from fossil fuels, not hybrid.

Tax Incentives

Reductions in taxes to incentivize building retrofits and efficiency measures.

Pro

- GHG reductions

Cons

- Reduces municipal tax revenue
- Time and personnel capacity in the city is required
- Does not provide upfront capital, thereby excluding low income individuals

Examples

Mexico City, Mexico - Sustainable Buildings Certification Programme

- Sustainable Buildings Certification Programme (SBCP) offers the owners or tenants of commercial, residential and industrial buildings an opportunity to reduce their environmental impact.
- For existing buildings, enrolling in the programme firstly requires performing an audit. SBCP participants are responsible for costs associated with this step.
- Agents will identify opportunities for building owners or tenants to invest in building upgrades to gain a higher certification level. If adopted, building improvements are then carried out. Once a building has obtained its final evaluation from auditors, an appropriate level of certification is determined and awarded by the Ministry of the Environment.
- Points are assigned to the retrofits, property tax discounts correlate to points achieved
- Compared to the base year 2009, for the 40 buildings certified as of 2015, the programme has achieved a total reduction of 20.1 million kWh of electricity and 66,120 tonnes of CO₂e

Mandatory Standards

Requiring retrofits on existing buildings within the city limits.

Pro

- GHG reductions
- Guaranteed widespread adoption
- Low cost to municipalities

Cons

- Not accessible to low-income owners who cannot afford the cost of retrofits
- Makes the average home renovation a more burdensome process for residents and homeowners

- Time and personnel capacity in the city is required

Vancouver, British Columbia - Greenest City 2020 Action Plan

- As part of their Greenest City 2020 Action Plan, Vancouver introduced Canada's first energy bylaw for existing buildings.
- The energy requirements come into effect when you apply for a building permit to renovate any part of a building, including residential suites.
- This requires all renovations to be retrofits, in a sense, with a few exceptions.

Manhattan, New York - Benchmarks

- As part of their 2019 updated climate plan, the Green New Deal, New York City placed mandatory reduction benchmarks for the city's highest-emitting buildings (about 20% of buildings fall into this category)
- By 2024, these buildings must meet their mandated reductions
- NYC offers financial and technical support to buildings for retrofitting
- This form of mandate appears to be out of jurisdiction for Ontario municipalities

Guiding Principles - For any Type of Retrofit Program

Based on the analysis herein, there are a number of guiding principles that can and should be applied to a home retrofit program, regardless of what form that program may take.

1. **Do not incentivize retrofits with low emission reductions.** Regardless of what the incentive looks like, be it a grant, a tax break, or a loan, incentives should not go towards retrofits that produce negligible GHG reductions. As shown through our CBA, replacing windows and doors will likely have minimal impact on emissions, and yet many retrofit programs incentivize this option. If GHG reduction is one of the primary goals of a retrofit program, as opposed to aesthetics or community renewal, the program should not incentivize retrofit options that fail to reduce building emissions in a meaningful way.
2. **Aim to minimize marginal abatement costs (MAC) of the retrofit program.** Since each retrofit project requires a different level of investment to result in 1 kg of CO₂e reduction, a retrofit program should aim to incentivize options with lower MAC. This promotes the efficient allocation of resources and maximizes program emissions impact.
3. **Account for the Rule of Stacking.** When 'stacked' together, retrofit projects can impact each other's overall emission reductions. A retrofit program can account for this reality by organizing available incentives accordingly. A retrofit program can be organized to determine which retrofit options will impact the emission reductions of other retrofit options, in order to place restrictions on the incentives available to particular project combinations. This serves to maximize the program's emissions impact and allocate resources efficiently.
4. **Account for discounting.** Due to the uncertainty of future GHG reductions, discounting can be applied to reductions that occur farther away from the retrofit project installation

date. A retrofit incentive program can either be designed to count lifetime emissions reductions or not. In the case where lifetime emissions are counted, a discount should be applied to later years.

5. **Account for embodied emissions.** Each retrofit project involves its own GHG output, based on the materials, shipping, and waste associated with the technology switch. A retrofit program can account for this reality in two ways. One, efforts can be made to calculate the embodied carbon of each individual applicant's retrofit and product selection and decide whether or not the project qualifies for incentives (this is a very labour intensive option). Two, a retrofit program can restrict incentives for products that are known to have high embodied carbon.
6. **Promote a Just Transition and Prioritize Energy Poverty.** According to the Canadian Urban Sustainability Practitioners (CUSP), energy poverty is measured by calculating the percentage of after-tax household income that is spent on home heating and electricity. CUSP uses 6% as the threshold to define households that experience energy poverty. In 2019, CUSP developed the Energy Poverty and Equity Explorer tool, using census data to calculate energy burdens for households across Canada. The Energy Poverty and Equity Explorer tool shows that energy poverty is pervasive throughout the Bay Area. Climate action has the opportunity to advance equity, while also addressing our changing climate. A retrofit program should prioritize energy poverty, thereby promoting a Just Transition to a low carbon future.
7. **Promote a Just Transition and Ensure Low-Barrier Access to Retrofits.** Some retrofit initiatives are not accessible to middle class and low-income populations. To ensure widespread uptake of efficiency measures, a program should make retrofits affordable to a larger population of homeowners.
8. **Promote Transparency and Consumer Choice.** As mentioned, some retrofit projects result in lower overall energy bills for residents, while others do not. Retrofit programs should make these projected impacts transparent to all consumers to avoid any surprises and ensure informed consent.
9. **Instill Market Confidence for Retrofits.** Business confidence and homeowner confidence rests, in large part, on the anticipated continuity of an incentive program. In order for a retrofit program to provide a strong market signal to drive both supply and demand, a pilot program should be in place for no less than FIVE (5) years. This continuity signals to business that it is worthwhile participating in the program and it signals to homeowners that the program is reliable.

These lessons ought to be considered in any retrofit program adopted at the municipal level.

LOCAL CONTEXT ANALYSIS

LOCAL CONTEXT ANALYSIS

Based on the lessons articulated in the cost benefit analysis in earlier sections, along with learnings from other jurisdictions, this section aims to provide specific recommendations for the City of Burlington and City of Hamilton to adopt in their own retrofit programs.

The following steps are taken herein:

1. Decide the model of incentives
2. Decide which retrofit projects to incentivize municipally
3. Outline proposed program details
4. Outline program rollout considerations

1. WHAT MODEL OF INCENTIVES SHOULD BE OFFERED MUNICIPALLY?

Local Improvement Charge Model (LIC)

The local improvement charge incentive model is the recommended approach of this report. This model is preferable over non-repayable grants or rebates and municipal tax incentives.

Here's why:

- **Lowest cost to the municipality**
 - Retrofit rebates and grants are non-repayable, making this retrofit model expensive for the municipality to cover
 - Municipal tax incentives reduce overall tax revenue, making this retrofit model expensive for the municipality to compensate for while avoiding deficits
 - LIC loans are recoverable and therefore do not count toward a municipality's debt, as far as provincial legislation is concerned
 - LIC loans are low risk for the municipality: if loan repayments go in arrears, the overdue amount can be recovered from the property using a special priority lien that takes precedence over other liens on the property, including mortgage liens
- **Proven history of success**
 - This model of retrofit program has been proven successful in a number of different jurisdictions, including Toronto, Melbourne, and San Francisco
 - The LIC model has had local implementation within Burlington and Hamilton for other upgrades.
 - Lead Water Service Replacement Program in Hamilton, which funds lead pipe replacement through local improvement charge loans
 - By-Law 49-2017 in Burlington which funds sidewalk improvements
 - The Ontario Municipal Act, 2001 (O.Reg. 586/06) allows Local Improvement Charge loans to facilitate the implementation of home energy retrofits by

financing energy efficiency and renewable energy measures voluntarily carried out by individual property owners on their buildings

- **Makes retrofits affordable to a larger population of homeowners**
 - Does not require homeowners to possess upfront capital, thereby allowing low income individuals to retrofit their homes
 - Provides access to favourable loan terms, otherwise unavailable to some homeowners
 - Low income households, with few collateral assets or limited access to credit, may qualify for financing
 - Allows homeowners facing energy poverty to access capital to purchase technology that can improve utility costs

2. WHAT RETROFITS SHOULD BE INCENTIVIZED MUNICIPALLY?

In order to determine which retrofit projects should be eligible for incentives from the municipality, this section narrows down eligible projects. The section considers which projects offer observable and substantive GHG reductions, which projects are already incentivized by existing programs in the region, and applies lessons learned from other programs for project selection.

To narrow options based on which projects offer observable and substantive GHG reductions, the chart below highlights projects with less than 1,000KG reductions of CO₂e in the first year of installation.

As discussed under the guiding principles section, incentives should not go towards retrofits that produce negligible GHG reductions. If GHG reduction is one of the primary goals of a retrofit program, as opposed to aesthetics or community renewal, the program should not incentivize retrofit options that fail to reduce building emissions in a meaningful way.

Table 8 - Existing Incentive Program Coverage and GHGs.

Projects CO ₂ e Reduction		
Retrofit Project	CO ₂ e kg	Existing Incentive Program Coverage
fuel oil to heat pump full switch*	-13,327	x
gas furnace to heat pump full switch	-3,175	x
Fuel oil hybrid heat pump*	-11,992	x
gas furnace to hybrid heat pump	-2,857	x
insulate exterior walls	-1,648	x
heat pump water heater	-1,417	x

electric water heater	-1,031	
upgrade furnace	-651	x
tankless gas water heater	-541	x
air sealing	-206	x
insulate existing gas heater	-90	
insulate attic	-37	x
upgrade window	-21	x
replace door	-21	x

After eliminating the projects that fail to meet the standard for meaningful GHG reductions, the chart below highlights which projects are already incentivized by existing programs in the region and by how much.

Table 9 - Projects Incentivized by Other Existing Programs

Projects Incentivized by Other Existing Programs					
Retrofit Project	Cost of Retrofit	Enbridge Home Efficiency Rebate Program		NRCAN Greener Homes Program*	
heat pump for space heating	\$9,000	-	NO	\$2,500 - 5,000	YES
insulate exterior walls	\$8,000	\$3,000	YES	\$660 - 5,000	YES
heat pump water heater	\$2,500	-	NO	\$1,000	YES
air sealing	\$1,000	\$100	YES	\$550 - 1,000	YES
electric water heater	\$1,000	-	NO	-	NO
energy audit	\$600	\$550	YES	\$600	YES

*Greener Homes will provide grants of up to \$5,000 for up to 700,000 homes across Canada

As per the above chart, not all remaining retrofit projects are fully incentivized by current programs offered to residents in the Bay Area.

Based on some of the lessons learned from other incentive programs, we can further narrow down retrofit projects that ought to be incentivized municipally.

Avoid funding the inevitable, when the inevitable is efficient.

Some incentive programs provide funding to replace existing technology with more efficient versions. Examples of this include incentive funding for energy efficient appliances (City of Edmonton) or energy efficient furnaces (Enbridge). When replacing certain existing technologies, it is practically inevitable that they will be more efficient. For example, it is near impossible to buy a furnace in 2021 with an efficiency rating lower than 90%. Providing an incentive will not lead consumers to opt for this 90% efficient option, because the market ensures it is the only available option. This begs the question: if folks are going to replace their fridge regardless, and the replacements are all rather efficient, should government allocate resources to incentive the purchase? This report does not recommend incentivizing the inevitable as a matter of efficient allocation of resources.

Lower the lending cap.

The City of Toronto LIC requires homeowners with a mortgage to acquire consent from their lender before participating in the program. This is a feature of the program because failing to obtain lender consent can be a breach of the covenants of a mortgage, which could result in a default or, at the very least, significant difficulty in renewing the mortgage. As a result of this program feature, about 50% of applicants to Toronto's LIC get rejected.

The rejection largely rests on the lender's balance of equity. Many banks prefer to follow the 80/20 rule, meaning the loan lenders are paying down is equivalent to 80% or less of the value of the home. If the LIC disturbs this equity ratio, banks are likely to reject the applicant.

To avoid the 50% applicant rejection rate found in Toronto, lowering the cap on LIC loans per household is an option. A smaller LIC loan would have a smaller chance of disturbing the preferred equity balance of lenders, leading to a higher approval rate for applicants of varying wealth.

Currently, the City of Toronto LIC funds retrofits up to \$75,000 in total. The average funding amount is \$26,000. Any cap placed on Bay Area LICs should therefore be below this amount.

In applying these lessons, the following is recommended for a municipal retrofit LIC incentive in Hamilton and Burlington.

RECOMMENDATION

It is recommended the municipality offer up to \$10,000 to cover air sealing services, the purchase and installation of air source heat pump(s), and any electrical service upgrades required to install the technology. This combination should be required in tandem, unless proof

of either or can be provided. The city may want to allow air sealing to take place up to one month after the installation of a heat pump, as scheduling the two services may take time.

Rationale

Heat pumps have:

- the highest GHG reduction potential of any single retrofit project modelled
- Limited coverage by other incentive programs currently available
- very low marginal abatement cost (meaning high ghg reduction for the lowest cost)

It makes sense to fill this gap in available incentives.

When stacked with heat pump technology, air sealing bolsters the performance of the retrofit, at minimal cost, allowing the lending cap to remain low, if funded.

Based on the cost benefit analysis modelled in earlier sections, installing a heat pump resulted in the highest GHG reduction potential of any single retrofit project modelled. When the heat pump is installed to fully take over all space heating, the model home saw an annual reduction of 3,175kg of CO₂e when installed in a home using natural gas and an annual reduction of 13,327kg of CO₂e when installed in a home using fuel oil. This accounts for a respective 77% and 93% reduction of household GHGs. When the heat pump is installed as a hybrid unit, and expected to mostly take over all space heating, with natural gas for back up, the model home saw an annual reduction of 2,857kg of CO₂e when installed in a home using natural gas and an annual reduction of 11,992kg of CO₂e when installed in a home using fuel oil. This accounts for a respective 69% and 84% reduction of household GHGs. This calculation for hybrid heat pumps was based on real, local, hybrid heat pump installation monitoring, where data showed the furnace kicking in about 5% of the time during the coldest months. However, our calculation involved a highly conservative prediction for the use of natural gas heating when a properly sized hybrid heat pump is installed, at 10% of the time.

Using a cost benefit analysis allows decision makers to determine which retrofit options offer the highest GHG reduction for less resources.

A hybrid heat pump can be a good 'gateway retrofit' option for a number of reasons. For one, it allows homeowners to keep their existing furnace for back up, offering a sense of assurance to homeowners unfamiliar with heat pump technology. The back up furnace is unlikely to often be necessary, given that modern heat pump technology works well in low temperatures found in Southern Ontario. Nonetheless, this assurance makes the product attractive, while offsetting the need for natural gas.

Moreover, a heat pump also provides cooling, allowing homeowners without air conditioning to access cooling in the hot summer months. This is a clear opportunity for equity in heating and cooling for low income populations.

Offering incentives for a limited number of retrofit options can help avoid what's known in behavioral economics as 'overchoice'. This occurs when too many choices are available to consumers. Overchoice has been associated with choice deferral, wherein consumers avoid making a decision altogether and thereby decide not to move forward with a purchase or retrofit, in this case.

By offering incentives for this combination of retrofit projects, the following is achieved:

- High GHG reductions
- Low lending cap
- Efficient allocation of resources
- Low complexity program design
- Equity for low income homeowners
- Fills gaps in existing retrofit incentives
- Avoid consumer choice overload (overchoice)

This incentive should still be available to those who wish to leverage more than one retrofit incentive. For example, if a homeowner wishes to apply for NRCan's Greener Homes program, which provides partial grants for heat pumps and air sealing, the applicant may want to access an LIC to cover the remaining cost.

3. OUTLINE OF PROPOSED PROGRAM DETAILS

Approval Process

A number of design recommendations surrounding the approval process are outlined herein.

Energy Audits

Some incentive programs require an initial energy audit to take place in order to access incentives. This is *not* advised for the municipal retrofit incentive proposed in this report. An energy audit is helpful when funding is available for a wide variety of retrofit options, as it can guide a homeowner's decision to invest in particular options. In this case, the proposed incentives would not cover a variety of retrofit options, making an audit unnecessary to guide consumer choice. The Halifax Solar City LIC program provides similar targeted funding for solar panels and does not require an energy audit for incentive eligibility.

Moreover, requiring an energy audit in order to access incentives would make a given retrofit program less agile and responsive to consumer needs. Generally, adding a step to the process

necessarily makes an incentive program more onerous for homeowners. In the HVAC industry in particular, it is very common for consumers to make last minute decisions on purchases (ie. on a cold winter night when the furnace breaks, or a hot summer day when the air conditioner struggles). This being the case, access to incentives related to HVAC purchases should ideally be agile and low-barrier, to reflect the reality of the industry.

Note: other incentive programs, like NRCan's Greener Homes, require energy audits. If an applicant wishes to stack this LIC incentive with Greener Homes, they will have to meet NRCan's eligibility requirements. However, those wishing to simply add a heat pump quickly, can do so under this program.

Quality Assurance

Quality assurance (QA) is an important part of program design. QA applies to two aspects of design: QA for homeowners and QA for city staff.

For homeowners, ensuring that the work completed is done by a knowledgeable and trained professional is important to establish trust. It should be noted that other LIC retrofit programs, including the program offered by City of Toronto, places all liability for sub-par work on the contractor who performed the installation or service, not on the municipality. Nonetheless, to encourage widespread uptake and trust in the program, QA measures are helpful in this regard.

To address QA in this regard, contractor registration is recommended. As part of the funding program, a municipality can require that only projects completed by contractors and service providers who have registered with the city are eligible for funding. This method of QA is used in other local incentive programs, such as City of Hamilton Sewer Lateral Management Program and the Protective Plumbing Program for backwater valves, where only registered contractors are eligible for funding.

As part of the contractor registration for the retrofit incentive program outlined herein, it is recommended that eligible contractors provide proof of their 313A or 313D license, demonstrating their competency in HVAC installation. It is also recommended that eligible contractors provide proof of liability insurance to register. This will reduce the likelihood of faulty installations, ensure liability coverage for homeowners in worst case scenarios, and make the process of finding a contractor easier for consumers. To incentivize further specialized training, the municipality should consider listing any additional contractor qualifications publicly on the registration list, such as Residential Heat Loss & Heat Gain Calculations training or the Residential Air Systems Design (RASD) course from the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI). Partial program cost recuperation is also possible through a registration fee.

Additional QA that would reduce the likelihood of faulty installations, includes a requirement for participating contractors to submit proof they have completed the Natural Resources Canada (NRCan) [Air Source Heat Pump Sizing and Selection Tool](#). By requiring a copy of the tool's summary page, contractors will demonstrate they have accounted for proper sizing considerations, which are essential for successful heat pump installation.

For city staff, QA measures can ensure the funds allocated are used for their intended purpose. To address QA in this regard, it is recommended that applicants submit proof of work completion to the municipality, with the chance that City staff may visit the property within 6 months post-completion to confirm changes visible from the exterior of the home. In practice, proof of work could include before and after dated-photos of completed projects, dated receipts of products and services, and blower door test results prior to air sealing.

Pilot Length

Business confidence and homeowner confidence rests, in large part, on the anticipated continuity of an incentive program. In order for a retrofit program to provide a strong market signal to drive both supply and demand, a pilot program should be in place for no less than FIVE (5) years. This continuity signals to business that it is worthwhile participating in the program and it signals to homeowners that the program is tried and true.

Product Conformity

Some incentive programs provide a specific list of products that are available for funding. As an example, Enbridge provides suppliers with monthly lists of specific water heaters that would qualify for funding in their retrofit incentive program. This approach can be time intensive and does not adjust easily to new product offerings. On the other hand, knowing which products are eligible for incentives can help guide suppliers in their stock and purchasing decisions.

An alternative approach to program design that would help guide suppliers, while also allowing for innovation and variety, would be to provide minimum product standards. In particular, a program could outline minimum SEER scores, minimum warranties, minimum HSPF ratings, and minimum capacity ratings at certain temperatures. Suggestions for each are provided below.

AHRI Number - It is recommended that eligible heat pumps should have a certified reference number from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI). The AHRI Directory is a trusted source for performance certified HVAC equipment.

Minimum SEER Scores - Seasonal Energy Efficiency Ratio (SEER) can range from 13 to 21 and indicates seasonal cooling efficiency of a heat pump. The higher the score, the higher the

efficiency. It is recommended that 15 SEER is the minimum score for heat pumps eligible for incentive funding.

Minimum HSPF Ratings- Heating seasonal performance factor (HSPF) indicates seasonal heating efficiency of a heat pump. The higher the score, the higher the efficiency. It is recommended that 10 HSPF is the minimum rating for heat pumps eligible for incentive funding. The HSPF ratings ought to be for AHRI Climate Region Zone IV.

Minimum Warranties - Warranties function as a written guarantee to assure buyers that their product will be replaced or repaired, if necessary, within a specified period of time after the purchase. It is recommended that 5 years is the minimum warranty for heat pumps eligible for incentive funding.

Minimum Capacity Ratings - The rated outdoor temperature of a heat pump reflects the lowest temperature that the unit can provide adequate heating. As outdoor temperatures drop, an air source heat pump must work harder to extract heat. Given the climate of the Bay Area, eligible heat pump products should have a minimum rated outdoor temperature of -15C and 100% capacity at -8C, allowing back up heat to kick in, when needed. For context, the Bay Area sees historical average temperatures of about -9C during the coldest months of winter (National Oceanic and Atmospheric Administration).

These suggested minimum standards are based on BACCC consultation with local wholesalers, suppliers, and manufacturers. The minimum standards proposed herein also reflect many of the performance requirements set by the Northeast Energy Efficiency Partnerships (NEEP) for cold climate air-source heat pumps. NEEP [hosts a list](#) of air source heat pumps that are suited for cold climates, with an IECC climate zone of 4 and higher. NEEP is one of six Regional Energy Efficiency Organizations funded by the US Department of Energy, tasked with accelerating energy efficiency in the Northeast and Mid-Atlantic states.

Aligning the product eligibility with NRCan's Greener Homes heat pump list would also suffice, particularly if the municipality wishes to make the incentive program stackable.

4. OUTLINE OF IMPORTANT CONSIDERATIONS FOR PROGRAM ROLL OUT

Avoiding Unintended Harm to Tenants

A retrofit incentive program could theoretically lead to above guideline rent increases or tenant eviction, depending on the design of the program.

Residential rent in Ontario is limited to predetermined annual rent increases, dictated by the Provincial government. Landlords can apply for above guideline rent increases when they can

demonstrate eligible capital expenses for their rental units. Eligible expenses include significant renovation, repair, or replacement with expected benefits that extend for at least five years.

In Ontario, a landlord can also apply to terminate a residential tenancy and evict the tenants if the landlord plans to do repairs or renovations that are so extensive that they require a building permit and vacant possession of the rental unit. Notably, in this situation, the tenant can choose to move back in after the repairs or renovations are complete, at the same as the rent before the tenancy was terminated. Nonetheless, this can be seriously disruptive to a tenants life and a highly undesirable outcome.

A number of design features can be implemented in a retrofit program to avoid unintended harm to tenants. First, a clause regarding above guideline rent increases should be included in the program's property owner agreement, wherein the owner agrees not to apply for a rent increase to assist the owner in paying for the cost associated with the work that the municipality funds. This measure is used by the City of Toronto for their retrofit program (see Appendix for details).

Second, an additional clause should be drafted and included in the Property Owner Agreement, stating that the owner will be required to repay the loan in full, should it be discovered that they breach the agreement by applying for a rent increase for the cost associated with the work that the municipality funds.

Third, by choosing to fund only heat pumps and air sealing, the proposed retrofit program will not result in renovations that are so extensive that they require a building permit and vacant possession of the rental unit. It is recommended that an additional clause be included in the Property Owner Agreement stating the owner acknowledges that the funded work does not require vacant possession of the rental unit.

Fourth, in order for tenants to be aware of and able to point to these measures, the municipality should send an information pamphlet to all participating households by mail, and provide explicit messaging on the program's webpage for tenants, to inform readers of these provisions.

Consider Ontario Disability Support Program (ODSP) recipients by seeking approval of the program director for written approval of the retrofit program loans, similar to Ontario Renovates.

Retrofit programs ought to ensure barrier-free access for all residents, including low income homeowners. Those who receive ODSP fall into the low income demographic, however, concerns have been raised in consultations about their ability to access retrofit loans. More specifically, concerns were raised that the loan provided for retrofit installation could count against a recipient's asset base, compromising their financial eligibility for ODSP. If this were true, a retrofit loan would negatively impact low income residents. For context, individuals

receiving ODSP are allowed up to \$40,000 in assets, or \$50,000 for a couple and \$500 for each dependent other than a spouse.

According to Section 7(3) of the Ontario Disability Support Program Act and Sections 13 and 54(1) of Regulation 134/98, certain circumstances allow a loan or a portion of a loan to be [exempt](#) as income for ODSP recipients. For example, ODSP recipients who receive loans from the Ontario Renovates program are not subject to penalty, as this program's loans are explicitly considered exempt as income. [Ontario Renovates](#) is a provincial program that offers low-income households up to \$20,000 in a forgivable loan or grant to improve their homes. This suggests that there is precedent for the exemption of loans for the purposes of renovations.

Moreover, legislation allows a loan to be [exempt](#) as an asset if, in the opinion of the Director, the payment will be used within a reasonable time and for the purpose for which it was paid. Given this precedent, retrofit program providers should ensure that they receive the necessary approvals from the Director, as part of the roll out of the program, to ensure that ODSP recipients can participate in the program, without negative repercussions.

Explain likely shift in utility bills to applicants.

Depending on how energy consumption shifts as a result of the retrofit, consumer energy bills will inevitably change. As mentioned in the cost benefit analysis, some changes result in overall less expensive energy costs, while in others, the overall cost for energy goes up. Retrofit programs should make these projected impacts transparent to all consumers to avoid any surprises and ensure informed consent.

In the case of heat pumps, our analysis shows that homeowners can expect substantially lower overall utility bills if they rely on fuel oil for space heating and slightly higher overall utility bills if they rely on natural gas for space heating. It is important to note that energy costs are not static and future changes to energy costs (like the impact of an increased carbon price) make a sizable difference.

Leverage the private sector for uptake and marketing.

The nature of home renovations is not often proactive, but reactive. BACCC's retrofit sector analysis demonstrates that a very small minority of homeowners seek upgrades proactively; instead, a deficiency or breakdown occurs and necessitates a quick solution. As a result, incentives are most often taken as an additional perk or discount communicated to the homeowner by those selling relevant products and services.

This suggests there is an opportunity to leverage the private sector to maximize program uptake. By communicating incentives to retrofit sector providers (like wholesalers, contractors,

auditors, and realtors), a municipal program will benefit from the collective marketing of hundreds of sources in the region.

Notify the Retrofit Sector in Advance of Launch

In addition to leveraging the private sector for marketing, it will be important to notify those working in the retrofit sector well in advance of the launch. Providing 3-6 months notice of program details to suppliers, contractors, wholesalers, realtors, HVAC associations and the like, is crucial for a successful program roll out. This will ensure supply chains are prepared with the right products approved for incentive, contractors have time to register for the program, manufacturers can train local installers in their products, and all parties have knowledge to share with homeowners who may wish to participate.

Electrical Service Upgrades

In order for heat pump technology to be installed, electrical service needs to meet sufficient levels. Homes installing heat pump technology should have 200 amp service. Whereas, some homes have only 60 AMP or 100 AMP service. There can be delays and costs associated with electrical service increases.

For a retrofit program with incentives for heat pumps to roll out successfully, a municipality needs to work with local hydro providers to formulate a plan for increased servicing.

Leverage and Adapt Existing LIC Resources

Bay Area municipalities can leverage and adapt resources from other municipalities and organizations to hasten the roll out process and minimize personnel capacity burden. In the appendix of this report, we include sample materials used by the City of Toronto for their program, which can be adapted to the proposal presented herein. Moreover, we include resources from the Clean Air Partnership on LIC program set up, which can also be adapted to the proposal we have suggested.

Establishment of Delivery Centre

In this proposal, efforts have been made to avoid program overlap. However, the average homeowner will likely have a hard time distinguishing between programs. Homeowners would benefit from the support of a delivery centre agent to navigate all available incentive programs and determine the best options for their unique situation. Mohawk's Centre for Climate Change Management is in the process of considering different models for a retrofit delivery centre in the Bay Area. Supporting the establishment of a retrofit delivery centre to help homeowners navigate the various incentive programs is recommended.

Later Stage Programming

In the event that there is widespread uptake of air source heat pumps and air sealing, this program model can be applied to other forms of retrofit projects, such as efficient water heater replacement and insulating exterior walls, at a later date.

Programs exist in other municipalities worldwide that incentivize owners and managers of multi-residential buildings (beyond duplex and triplexes) to invest in retrofits. Due to the nature of drives and considerations for those forms of property owners, a separate program is required to effectively incentivize change. The roll out of additional retrofit programming for multi-residential buildings should be a key priority for Bay Area municipalities.

When contemplating program expansion for multi-residential buildings, two important considerations ought to be included. First, an expanded program for multi-residential buildings needs to account for what is referred to as the *split incentive problem*, wherein the owners who bear the cost of retrofits do not benefit from lower energy costs. This problem is uncommon in older buildings, where units are often unmetered and the landlord pays for utilities. However, this is less and less common nowadays and should therefore be considered when designing an incentive program.

Second, an expanded program for multi-residential buildings needs to account for the *competition for capital* that owners and property managers face. Owners and property managers are constantly weighing a number of capital expenditures for their buildings. In order for deep retrofits to top the list of capital deployment options, they need to offer a more compelling case for expenditure than other projects. This dynamic ought to be considered when designing an incentive program.

RECOMMENDATIONS

Stemming from these analyses, this report includes specific recommendations for the City of Burlington and City of Hamilton to adopt successful retrofit programs.

Summary of Recommendations

1. Utilize the local improvement charge (LIC) incentive model for a retrofit incentive program, as opposed to non-repayable grants, rebates, or municipal tax incentives.
2. Offer up to \$10,000 to cover air sealing services, the purchase and installation of air source heat pump(s), and any electrical service upgrades required to install the technology.
3. Make the incentive available to those wishing to leverage more than one retrofit incentive program (ie. NRCan's Greener Homes program).
4. Do not require energy audits for access to the program.

5. Create a contractor registry, where only projects completed by registered contractors are eligible for funding. Require proof of a 313A or 313D license and proof of liability insurance to register.
6. Require applicants to submit proof of ASHP sizing and proof of work completion to the municipality, with the chance that City staff may visit the property within 6 months post-completion to confirm changes visible from the exterior of the home.
7. Set the retrofit program pilot to be in place for no less than FIVE (5) years to instill confidence in the market.
8. Provide minimum product standards instead of specific product lists for eligible funding.
9. Take program measures to prevent unintended harm to tenants.
10. Consider Ontario Disability Support Program (ODSP) recipients by seeking approval of the program director for written approval of the retrofit program loans, similar to Ontario Renovates.
11. Inform participating homeowners of projected impacts to utility bills to avoid any surprises and ensure informed consent.
12. Leverage the private sector for uptake and marketing.
13. Provide 3-6 months notice of program details to suppliers, contractors, wholesalers, realtors, HVAC associations and the like prior to the launch of a retrofit program.
14. Work with local hydro providers to formulate a plan for increased electrical servicing for heat pump technology.
15. Leverage and adapt existing LIC resources from other municipalities and organizations to hasten the rollout process and minimize personnel capacity burden.
16. Support the establishment of a retrofit delivery centre to help homeowners navigate various retrofit incentive programs.
17. Prioritize later stage roll out of additional retrofit programming for multi-residential buildings.
18. In the event that there is widespread uptake of air source heat pumps and air sealing, this program model can be applied to other forms of retrofit projects at a later date.

CONCLUSION

About 18% of the Bay Area's overall carbon emissions come from heating, cooling and powering our homes, apartments, and commercial buildings. The pathway to a low-carbon future involves transitioning our existing buildings off fossil fuels and undertaking deep energy retrofits on a massive scale. At the same time, we need to build new structures to a zero carbon standard.

In order to meet the City of Hamilton and City of Burlington's climate goals to become carbon neutral communities by 2050 and to complete these retrofits in a timely and widespread manner, a home retrofit program is necessary.

This report includes:

1. **Landscape Analysis** - Reviewing different types of retrofit programs found in municipalities around the world to understand the pros and cons of each option.
2. **Cost Benefit Analysis** - Assessing popular retrofit options on the basis of cost and greenhouse gas impact.
3. **Local Context Analysis** - Reviewing local factors, such as market readiness, which may impact a local incentive program.

These three forms of analysis served as the basis for the specific recommendations listed herein. A program designed with these recommendations in mind will:

- Incentivize retrofits with high emission reductions
- Efficiently allocate limited resources
- Promote a just transition by providing low-barrier access to retrofits
- Promote transparency and consumer choice
- Instill market confidence for retrofits
- Promote high uptake.
- Prevent unintended harm to tenants.
- Ensure low complexity program design
- Promote equity for low income homeowners
- Fill gaps in existing retrofit incentives
- Provide a 'gateway retrofit' for hesitant homeowners
- Avoid consumer choice overload (overchoice)

The Bay Area Climate Change Council supports the adoption of this program design for the City of Hamilton.

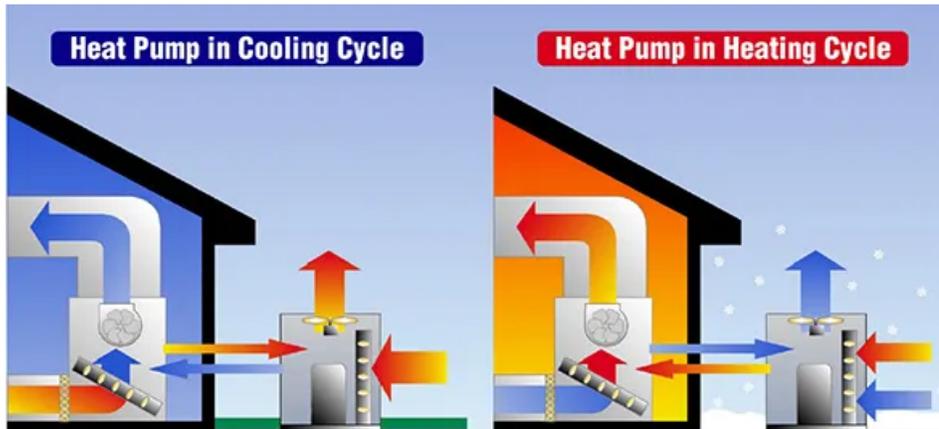
APPENDIX

APPENDIX A - FREQUENTLY ASKED QUESTIONS (FAQ)
FOR PROPOSED PROGRAM

FREQUENTLY ASKED QUESTIONS (FAQ)

How does a heat pump work?

- In a nutshell, heat pumps use electricity and refrigerant to move heat from one place to another. A heat pump can provide both heating and cooling. To do so, air source heat pumps extract heat from outside air (even seemingly cold outside air). Depending on whether a homeowner wishes to cool or heat their home, the direction of the heat transfer is determined.



Do heat pumps work in cold climates?

- Nowadays, numerous manufacturers offer cold climate air source heat pumps that work efficiently when temperatures drop. Some manufacturers offer cold climate heat pumps that continue to work when temperatures get as low as -25°C . This means that the heat pumps can work in cold climates for much of the year without needing any supplemental back up heat whatsoever.
- External bodies, such as the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and Northeast Energy Efficiency Partnerships (NEEP) offer certification for HVAC equipment to validate manufacturer claims.

Do I have to get rid of my furnace?

- No. A hybrid air source heat pumps allow homeowners to keep their existing furnace as a supplemental backup heat source, just in case.
- Based on historical temperatures, technological innovation, and monitored data from existing units in the GTHA, it is unlikely the back up heating will be used frequently. However, a hybrid heat pump maintains the option.

Will this cost me more money in utilities to operate a heat pump?

- It depends. Operating a heat pump instead of a furnace fuelled by natural gas or fuel oil will inevitably change your utility bills. Air source heat pumps operate using electricity, resulting in greater hydro usage. At the same time, ending reliance on fuel oil or natural gas for heating will lower those utility costs when operating a heat pump.

- Once the shift in utilities takes place, some homeowners will experience significant savings in overall utilities, while others will not. The goal of this program is to make these projected impacts transparent to all consumers, to avoid surprises and ensure informed consent.
- It is also important to note that energy costs are not static, they change. An increase in carbon pricing, which is currently scheduled on an annual basis for both fuel oil and natural gas, will continue to improve the business case for electric heat pumps to deliver cost savings.

What is air sealing?

- Air sealing involves finding and sealing points of air leakage throughout a home. Air leakage occurs when outside air enters and conditioned air unintentionally escapes a house, through cracks and openings. A “leaky” house costs more to heat and cool and is therefore less efficient.

My landlord is accessing this program. Is there anything I should know?

- Yes. There are several protections afforded to tenants in this program.
- First, you should know that there are a number of retrofit program incentives out there. This program provides funding for a heat pump system and air sealing services. To learn more about other incentive programs your landlord may be accessing, click here [\[INSERT LINK TO RETROFIT DELIVERY CENTRE\]](#).
- If your landlord has accessed this program, there are measures in place to protect you from eviction and above guideline rent increases (AGI), as a result of the retrofit and associated incentive.
- First, if your landlord accessed this retrofit program, they signed an agreement vowing not to apply for a rent increase to assist in paying for the cost associated with the work that the municipality funds.
- Second, if your landlord accessed this retrofit program, they signed an agreement requiring them to repay the loan in full, should it be discovered that they breach the agreement by applying for a rent increase for the cost associated with the work that the municipality funds. You can report a breach in terms here [\[INSERT LINK\]](#).
- Third, retrofits that are incentivized through this program can not result in eviction. If your landlord accessed this retrofit program, they signed an agreement acknowledging that the funded work does not require vacant possession of the rental unit. You can access the terms outlined in the Property Owner Agreement for this program here [\[INSERT LINK\]](#).

I have tenants. Is there anything else I should know about this program?

- Yes. Landlords are bound by a number of obligations under this incentive program.
- If you access this program and you have tenants at the property you retrofit, there are measures in place prohibiting eviction and above guideline rent increases (AGI), as a result of the retrofit and associated incentive.

- First, to access this retrofit program, you must sign an agreement vowing not to apply for a rent increase to assist in paying for the cost associated with the work that the municipality funds.
- Second, to access this retrofit program, you must sign an agreement requiring you to repay the loan in full, should it be discovered that said agreement has been breached by applying for a rent increase for the cost associated with the work that the municipality funds.
- Third, retrofits that are incentivized through this program can not result in eviction. To access this retrofit program, you must sign an agreement acknowledging that the funded work does not require vacant possession of the rental unit. You can access the terms outlined in the Property Owner Agreement for this program here [\[INSERT LINK\]](#).

Do I need to get an energy audit to qualify for this incentive?

- No. Homeowners are not required to complete an energy audit to qualify for this incentive.
- An energy audit is helpful when funding is available for a wide variety of retrofit options, as it can guide a homeowner's decision to invest in particular options. In this case, the proposed incentives would not cover a variety of retrofit options, making an audit unnecessary to guide consumer choice.
- Other retrofit incentives may require an energy audit to qualify. To learn more about other incentive programs you may be able to access, *click here* [\[INSERT LINK TO RETROFIT DELIVERY CENTRE\]](#).

Can I pair this program with the incentive for free insulation?

- Yes! There are a number of home retrofit incentives offered in the GTHA, including incentives for better insulation. To learn more about other incentive programs you may be able to access, in addition to this program, *click here* [\[INSERT LINK TO RETROFIT DELIVERY CENTRE\]](#).

What is an LIC?

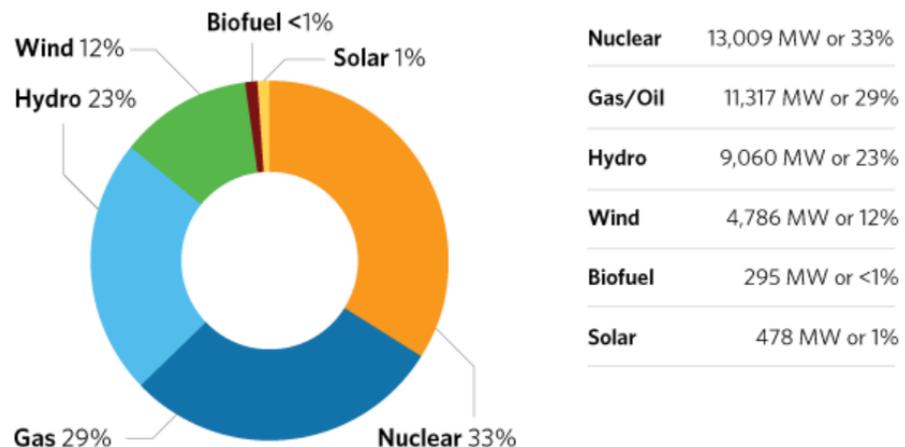
- Local improvement charges (LICs) are temporary charges that are added to a municipal property tax bill to pay for improvements that benefit the property owners. LICs can be used to cover a variety of improvements, including home retrofits. In simple terms, an LIC is basically a low interest loan coordinated through the municipal government.
- This is how a retrofit LIC works, in a nutshell:
 1. The homeowner receives financing and pays for the retrofit measures.
 2. The homeowner repays the loan through regular, low interest charges added to their property tax bills.

What happens if I sell my home?

- Since the LIC loan is tied to the property, it can be transferred to the new owner if and when the home is ever sold.

Will heat pumps strain the electricity grid?

- Grid-connected capacity in Ontario reached 38,644 MW in 2020. The IESO [tracks peak demand](#) in the Ontario grid on an ongoing basis. The [top twenty](#) record electricity demand days for the province of Ontario, since the market opened in 2002, are all in the summer months. When divided by season, the all-time peak for electricity demand in the summer was 27,005 MW on August 1, 2006. The all-time peak for electricity demand in the winter was 24,979 MW on December 20, 2004.
- Adding heat pumps to the grid will increase required capacity, and ought to be considered by the IESO for future planning. However, the risk from heat pumps alone is not imminent.



Note: Represents IESO-metered generation that may be distribution connected.

Will this program impact my eligibility for ODSP?

ODSP are allowed up to \$40,000 in assets, or \$50,000 for a couple and \$500 for each dependent other than a spouse. According to Section 7(3) of the Ontario Disability Support Program Act and Sections 13 and 54(1) of Regulation 134/98, certain circumstances allow a loan or a portion of a loan to be exempt as income for ODSP recipients. For example, ODSP recipients who receive loans from the Ontario Renovates program are not subject to penalty, as this program's loans are explicitly considered exempt as income. Ontario Renovates is a provincial program that offers low-income households up to \$20,000 in a forgivable loan or grant to improve their homes. This suggests that there is precedent for the exemption of loans for the purposes of renovations.

Moreover, legislation allows a loan to be exempt as an asset if, in the opinion of the Director, the payment will be used within a reasonable time and for the purpose for which it was paid.

On [\[insert date\]](#) this program received the necessary approvals from the Director,, to ensure that ODSP recipients can participate in the program, without negative repercussions.

APPENDIX B - CLEAN AIR PARTNERSHIP LIC GUIDELINES

[Click here to Access](#)

APPENDIX C - NRCAN TOOLKIT FOR AIR SOURCE HEAT PUMP SIZING AND SELECTION

[Click here to Access](#)

APPENDIX D - UTILITY COST METHODOLOGY

UTILITY COST METHODOLOGY

Electricity

Using the [Ontario Energy Board Bill Calculator](#), the price of electricity is estimated to be 18.91 cents/kWh using a time-of-use pricing model for the average household using 700 kWh of electricity monthly. It should be noted, however, that the average cost for electricity using tiered pricing is 18.62 cents/kWh. Time-of-use pricing was used because it was the conventional pricing model used by Ontarians [prior to the COVID-19 pandemic](#) and remains the default option today. Users can opt into tiered rates, however, should they desire.

The estimations provided by the Ontario Energy Board suggest Ontario households on average utilize 700kWh of electricity monthly. They also estimate that users consume 64% of their electricity off-peak, 18% mid-peak, and 18% on-peak. The pricing for electricity is 8.2 cents/kWh for off-peak, 11.3 cents for mid-peak, and 17 cents for on peak as of June 10, 2021.

When using a weighted average that incorporates the mentioned proportions of time-use, the average price of electricity in Ontario is 10.342 cents/kWh before charges. When adding regulatory and delivery charges estimated by the OEB, as well as HST, the average monthly cost for electricity is roughly \$132.37 - or 18.91 cents/kWh. It should be noted that until 2022, users will be receiving the Ontario Electricity Rebate . With this rebate, the average monthly cost for electricity is roughly \$110.25 - or 15.75 cents/kWh - using time-of-use pricing and 15.51 cents/kWh using tiered pricing. All estimates were calculated for the Alectra Utilities Corporation-Horizon Utilities Rate Zone.

For estimates regarding the impacts of retrofits, the regulatory and delivery charges were estimated based on the average marginal increase for every kWh. This was calculated using the averages of the marginal increases in price for every 100 kWh interval.

The base delivery charge begins at a flat fee of \$28.24 and then increases by ~1.9 cents/kWh. The base regulatory charge is 25 cents, increasing by ~0.405 cents/kWh. These were calculated and then added to the base charge of 10.342 cents/kWh.

Natural gas

According to OEB estimates, the customer charge for natural gas in the Hamilton-Burlington area is \$21.83, regardless of the amount of natural gas used. The variation in per-cubic-metre pricing comes from the delivery, gas supply, transportation, and carbon charges as well as cost adjustments. The following are estimates based the the averages of marginal differences of 100 m3 intervals expressed as an average price per m3:

Delivery: ~9.3 cents/m3

Gas supply charge: ~11.95 cents/m³

Cost adjustment: ~-0.97 cents/m³

Transportation: ~3.99 cents/m³

Carbon charge: ~7.83 cents/m³

The carbon charge is estimated based on current (2021) estimates provided by the [Ontario Energy Board Bill Calculator](#). This figure is at the current rate of \$40/tCO₂e. It should be noted, however, that this figure will increase to \$9.79 cents/m³ in 2022 and commensurately for years thereafter to meet \$170/tCO₂e by 2030 (at a \$15 increase every year starting in 2023).

Fuel oil

The price estimate for fuel oil was retrieved using the daily price for furnace oil at the time of writing via [fuelsonline.ca](#). Rapid inflationary pressure on the price of oil toward the end of 2021 has caused the cost of furnace oil to go up significantly since this initial pricing, however, this rapid price change is considered anomalous.

Methodology for 2030 Estimates

The projections for federal carbon charges for natural gas were extrapolated from the [stated rates](#) for the federal carbon charge between 2019 and 2022. To extrapolate projections beyond 2022, the marginal difference between each year was calculated. The result at an increase of \$10/tCO₂ per year since 2019 was 1.96 cents/m³. With the announcement in 2021 to increase the price of carbon to \$15 each year to reach \$170/tCO₂ by 2030, the marginal increase in the carbon charge per cubic metre was calculated at around 2.94 cents/m³. The calculation for each year's rate per cubic metre is as follows:

2019 – 2030 Federal Carbon Charge Rates for Marketable Natural Gas				
Year	\$/tCO ₂ e	cents/m ³		Marginal increase per m ³
2019	\$20	3.91		
2020	\$30	5.87		1.96
2021	\$40	7.83		1.96
2022	\$50	9.79		1.96
2023	\$65	12.73		2.94

2024	\$80	15.66	2.93
2025	\$95	18.6	2.94
2026	\$110	21.54	2.94
2027	\$125	24.48	2.94
2028	\$140	27.42	2.94
2029	\$155	30.36	2.94
2030	\$170	33.3	2.94

Similar calculations were used for fuel oil. The carbon price for fuel is incorporated into the final price as opposed to a separate charge, however. Calculations were determined using [fuel charge rates](#) for Ontario between 2019 and 2022. Again, these rates were extrapolated beyond 2022 using marginal differences between rates, accounting for the increase in the carbon price by \$15/tCO₂. It should be noted that rates for light fuel oil were used. The result was a marginal difference of \$0.0402 per litre (or 4.2 cents/litre) each year. The calculations are as follows:

2019-2030 Fuel Charge Rates for Light Fuel Oil (Carbon Pricing)		
Year	Fuel Charge Rate (\$)	Marginal difference (\$)
2020	\$0.05	
2021	\$0.08	\$0.03
2022	\$0.11	\$0.03
2023	\$0.13	\$0.03
2024	\$0.17	\$0.04
2025	\$0.21	\$0.04
2026	\$0.25	\$0.04
2027	\$0.29	\$0.04
2028	\$0.34	\$0.04
2029	\$0.38	\$0.04
2030	\$0.42	\$0.04

The methodology for utility cost projections factoring in 2030 carbon pricing is the following:

- All estimates relied on consumption estimates produced for the present day.

- A 9% inflation figure was selected because we assume a 1% inflation increase every year until 2030.
- **Hydro bill**
 - 2030 utility bills were estimated by multiplying present day calculations by 1.09, a 1% inflation increase every year (9% between present day and 2030).
- **Natural gas**
 - 2030 gas estimates were calculated by adding a 9% inflation figure to present day delivery, gas supply, cost adjustment, and transportation charges. The federal carbon charge includes the federal government's goal of \$170 per tonne of CO₂ produced by 2030. The resulting charge per cubic metre was \$0.33.
- **Fuel oil**
 - Fuel oil projections were taken by removing the portion of the final charge attributable to carbon pricing, extrapolated from [official numbers](#) published by the Government of Canada. 2030 estimates were calculated by multiplying present day estimations without carbon pricing by a 9% inflation figure and then adding the 2030 carbon pricing estimate separately.

APPENDIX E - CITY OF TORONTO SAMPLE LIC DOCUMENTS

Authority: Executive Committee Item 33.22,
as adopted by City of Toronto Council on July 16, 17, 18 and 19, 2013

CITY OF TORONTO

BY-LAW No. 1105-2013

To authorize the undertaking of energy efficiency and water conservation works on private residential property as local improvements under the Residential Retrofit Program.

Whereas Part III of Ontario Regulation 596/06 authorizes Council to pass a by-law to undertake works on private residential property as local improvements for the purpose of raising all or part of the cost of the work by imposing special charges on lots upon which all or some part of the local improvement is or will be located; and

Whereas such a by-law may authorize the undertaking of works which satisfy the requirements of a City program; and

Whereas at its meeting of July 16, 17, 18 and 19, 2013, City Council adopted the Residential Retrofit Program pursuant to authority of Ontario Regulation 596/06;

The Council of the City of Toronto enacts:

1. Council authorizes the undertaking of energy efficiency and water conservation works on private residential property as local improvements under the Residential Retrofit Program, as set out in Appendix A to this By-law, for the purpose of raising all or part of the cost of the work by imposing special charges on lots upon which all or some part of the local improvement is or will be located.

Enacted and passed on July 19, 2013.

Frances Nunziata,
Speaker

Ulli S. Watkiss,
City Clerk

(Seal of the City)

Appendix A

Residential Retrofit Program Design

I. Single-Family Housing Program Stream

1.0. Overview

The Single-Family Stream of the Program is designed to extend municipal funding to consenting homeowners for the installation of qualifying natural gas, electricity and water conservation improvements and related energy assessments and then to secure payment by imposing a local improvement charge on the private residential property, as authorized by the Regulation.

1.1. Program Eligibility

Residential low-rise buildings located within the City of Toronto of the following forms are eligible: detached, semi-detached, townhouse and more generally housing forms with fewer than seven units.

The property must have a property tax account with the City of Toronto. The property must also be a customer of either Toronto Hydro and/or Enbridge Gas.

Participation is voluntary, owner-initiated and subject to the following conditions:

- All registered owner(s) of the property must consent to participating in the Program;
- Property tax, utility bills and all other payment obligations to the City for the past five years must be in good standing; and
- Consent from all mortgage lenders, if the property is subject to one or more mortgages.

1.2. Neighbourhood Selection Process

Enbridge Gas and Toronto Hydro have identified a mutual interest and willingness to work alongside the City in selecting four Toronto neighbourhoods to pilot the Program.

The neighbourhood selection process is to be guided by the preliminary criteria set out below:

- One neighbourhood selected from each of the Community Council areas;
- Above average utility-calculated natural gas and electricity end-use consumption;
- Above average number of pre 1980 building vintages and uniform building types;
- Higher than average ratio of owner-occupied versus rental properties;
- Varying demographic and socio-economic characteristics (i.e. low-income neighbourhoods); and
- Existing community initiatives or organizations interested in being aligned with the Program to achieve efficiencies in terms of program delivery (i.e. marketing and outreach support).

The City will monitor Program uptake within the pilot neighbourhoods during the implementation of the Program. If appropriate, the Program may be rolled out Citywide to achieve the participation goals (i.e. either \$10 million in retrofits or 1,000 single-family homes) while operating within the City Council approved budget.

1.3. Home Energy Assessments

Similar to the ecoENERGY Home Retrofit Program designed by the Federal Government, the City's Program will utilize the EnerGuide Rating System (the "ERS") that provides a standard measure of a home's energy performance. It provides a standardized tool and process to assess home energy efficiency and can model energy savings projects.

The property owner must hire a Certified Energy Advisor (the "CEA") - certified by Natural Resources Canada ("NR Can") - to perform pre- and post-retrofit assessments in accordance with ERS. CEAs are experts in the field of energy efficiency and well-versed in the 'whole home' approach to home energy systems, technologies and products. The cost of the energy assessments are paid by the homeowner to the CEA. Under the current Enbridge Gas incentive program, a homeowner is eligible for a rebate for the cost of an energy assessment of up to \$500 should a homeowner complete a retrofit project and achieve a minimum natural gas savings (e.g. 25% natural gas reduction). This incentive effectively covers the entire energy assessment costs (excluding HST).

Upon completion of the pre-retrofit home energy assessment, a report is provided to the homeowner with the NR Can EnerGuide rating for the home and recommendations for energy improvements that could potentially increase that rating. This report is to be provided to the City in order to access LIC funding.

After the retrofit is complete, a second and final home assessment is performed by the CEA to obtain a second EnerGuide rating and to verify the completion of work. Provided that the second assessment that the homeowner provides to the City indicates that the EnerGuide rating has increased and the improvements have been completed, then the utility incentives (described in Section 1.8. – *Access to Utility Rebates & Incentives*) can be determined and the City can issue the final disbursement of funds, minus those incentive amounts.

1.4. Qualifying Energy Efficiency & Water Conservation Measures

The home energy assessment must demonstrate the potential to achieve cost-effective energy reductions in order to qualify for LIC funding. Funding is designated for capital costs (not maintenance costs) with an expected useful life of 5 years or greater and for measures that are permanently affixed to a property. The expected useful life of the retrofit measures is to be linked with the LIC term. The non-exhaustive list of the categories of measures eligible under the Program includes:

- i. *Thermal envelope upgrades*: attic, wall and basement insulation, windows, air-sealing.
 - ii. *Mechanical systems*: furnace and boiler replacement, water heater replacement, thermostats and controllers, drain water heat recovery systems.
 - iii. *Water efficiency*: low-flow toilets.
- Ineligible measures include equipment or products not permanently affixed to the property, previously installed in another home and are deemed general maintenance.

By recommending categories of retrofit improvements and associated measures, the City makes no guarantees of the materials, performance, cost-effectiveness or any warranty of the measures supported by the Program.

Only the costs associated with retrofits of up to 5 percent of the Current Value Assessment of the property are eligible for the Program.

1.5. Completing the Retrofit through Contractor Engagement

The City will provide funding to homeowners for eligible measures covered by the Program that have been recommended by the CEA, verified by the City and installed by contractors hired by the property owner. The City will not pre-qualify contractors or procure contractors to perform energy assessments or install retrofit improvements on behalf of homeowners in connection with this Program. The homeowner will use the funds disbursed by the City to pay contractors directly. Note that none of the funding can be used for the CEA, but utility rebates may be available for that cost.

The City is not responsible for the work quality of any contractors hired in connection with this Program and assumes no liability for the works undertaken. All retrofit improvements and renovations must adhere to local codes and by-laws. The homeowner is responsible for ensuring that hired contractors are licensed, bonded, and insured. Any issues that may arise relating to the quality of workmanship or post-installation performance of energy measures, for example, should be dealt with by the property owner and contractor.

1.6. Application Process

The steps below outline the process and requirements homeowners need to follow as part of the Program. City staff will periodically review this process to ensure effective Program implementation and, where deemed appropriate, the City may make changes in its sole discretion.

Step 1: Pre-qualification

Homeowners submit an on-line application form that includes, but is not limited to, the following information:

- Property address to confirm location is within eligible pilot neighbourhood;
- Property assessment roll number to confirm no outstanding payments owed to the City in the last five years; and
- Evidence of mortgage lender consent (where applicable).

If a homeowner has one or more outstanding mortgage(s) associated with the property, then the homeowner must obtain (at his or her own expense) consent from the mortgage lender(s) through a form that the City will provide. Property owners will advise their mortgage lender(s) of their intention to participate in the Program and receive permission from the lender(s) (perhaps up to only a specific dollar amount) as a requirement of the Program.

Once the property owner has been prequalified by City staff, based on the above criteria, the City will provide Notice to Proceed to the homeowner.

Step 2: Energy Assessment and Funding Request Form

1. Energy Assessment

The homeowner completes the pre-retrofit home energy assessment in accordance with Section 1.3 *Home Energy Assessments* and submits to the City the resulting Energy Assessment Report that the CEA provides to the homeowner.

That Energy Assessment Report must include:

- the current NR Can EnerGuide rating for the home;
- recommended improvements that have been customized for the home based on existing conditions which could potentially increase the NR Can EnerGuide rating of the home;
- the estimated useful life of the proposed improvement(s);
- estimated energy cost savings that may be realized after installing the recommended improvements; and
- potential eligibility for utility rebates and incentives offered by Toronto Hydro and Enbridge Gas.

In addition, where the CEA will also act as the contractor, the estimated cost of the works can be included in the report or separately indicated on the Funding Request Form.

2. Funding Request Form

Along with the Energy Assessment Report, the homeowner also will need to submit a Funding Request Form that:

- identifies the improvements that the property owner intends to install based on the Energy Assessment Report;
- identifies the cost for each improvement (including equipment, materials and labour costs); and
- the amount of prepayment (up to a maximum of 10% of the estimated cost of the work) being requested from the City upon signing the POA.

Following receipt of the Funding Request Form, the City will:

- confirm the eligibility of the works (e.g. items affixed to property);
- verify the reasonableness of retrofit costs and labour costs by consulting manufacturer pricing and prevailing labour rates;
- calculate the administrative costs using a formula that apportions the cost to the City to operate this program between participating properties as percentage of the cost of the work undertaken relative to the percentage of the cost of the work to the overall Program budget for each Program Stream;
(*n.b.* the "cost to the City" includes recurring costs and any non-recurring costs not covered by the grant funding that the City has obtained for the Program); and
- estimate the eligible utility rebates and incentives available to the homeowner.

The above steps will enable the City to derive the funding amount up to the maximum of five percent of the property's assessed value to include in the Property Owner Agreement.

Step 3: Property Owner Agreement

After the City has confirmed the acceptability of the Energy Assessment Report and the Funding Request Form, the City will prepare a property owner agreement ("POA"), in accordance with Appendix B for the homeowner(s) to review and sign.

Step 4: Completing Improvements*1. Initial Funding Disbursement*

Following execution of the POA, the City will provide the homeowner with the initial disbursement agreed upon in the POA to a maximum of ten percent of the estimated cost of the work that can be used by the homeowner to pay contractors or suppliers (i.e. security deposit). The property owner will be contractually obligated to repay this initial disbursement to the City if the property owner does not complete the improvements.

The property owner can then proceed with hiring contractor(s) and performing the approved energy improvements to the property. The improvements must be completed within a reasonable timeframe, as stipulated in the POA, to be determined by the City in its sole discretion.

2. Final Funding Disbursement

As will be detailed in the POA, the City will provide the final disbursement only after the homeowner provides a copy of the post-retrofit assessment report from the CEA that:

- includes a Certificate of Completion that attests the approved retrofit measures having been installed and provides an EnerGuide rating of the home after the retrofit measures have been completed which is greater than the original EnerGuide rating noted on the pre-retrofit assessment report from the CEA; and
- indicates the actual costs and useful life for all the works.

Step 5: LIC Repayment

Following the City Treasurer's periodic certification of the local improvement roll, (which occurs after the improvements on a given set of properties are complete and the final amounts of funding are confirmed), the City Solicitor will submit a corresponding bill for Council to adopt a by-law pursuant to Section 35.14 of O.Reg 596/06 to impose the special charges on the participating properties. For each property included in the by-law, the Treasurer will then add to the City's tax roll for that property each year that portion of the imposed special charge that is due in that year. These collective steps will provide priority lien status for the annual amount that the Treasurer adds to the tax roll and will ensure that any subsequent property owner who was not a party to the POA is bound to pay that amount.

To facilitate repayment of the annual special charge, the POA will require homeowners to sign-up for the pre-authorized payment plan option of 11 monthly instalments similar to the existing Program for property tax payments. At any time, a homeowner can make advance payments, including a one-time payment of the total outstanding amount owing to clear the property of the LIC charge. Failure to make payments is treated with the same remedy as uncollected property taxes which may include penalties and interest charges.

1.7. LIC Disclosure

As indicated above, the subsequent owner of a property on which the City has imposed a special charge is required to pay the City the annual LIC amount even though that subsequent owner was not a party to the original POA. In addition to notice that the City will be giving in accordance with the provisions of O.Reg 596/06, the City also will take the following steps to ensure even greater transparency of the LIC to interested parties by:

- i) posting on the City's website notice of the special charge by-law to impose the charge on the property in advance of its introduction and after its adoption; and

- ii) updating the Tax Certificate to include the full LIC amount, amount payable in the current year, outstanding amounts owing and a note to reference the by-law pursuant to which the special charge was imposed.

1.8. Access to Utility Rebates & Incentives

The City plans to partner with Enbridge Gas and Toronto Hydro in the delivery of the Program to streamline homeowner's access to incentives and promotions that the utilities are making available, in part, pursuant to certain Provincial directives. Incentives are subject to change and availability.

- i. Financial incentives to qualified homeowners provided by Enbridge Gas include¹:
 - a. Incentives for 25% - 49% annual gas savings totals \$1,600: \$500 covering the full energy audit costs, excluding HST, and \$1,100 in a cash incentive
 - b. Incentives for 50% annual gas savings, or above, totals \$2,000: \$500 covering the full energy audit costs, excluding HST, and \$1,500 in a cash incentive
- ii. Financial incentives to qualified homeowners provided by Toronto Hydro include²:
 - a. Incentive of \$250 for replacing an existing furnace with a qualifying high-efficiency furnace with an Electronically Commutated Motor (ECM).
 - b. Incentive of \$250 for replacing an existing central air conditioner with a qualifying ENERGY STAR qualified system.
 - c. Incentive of \$400 for replacing an existing central air conditioner with qualifying stand-alone CEE 'Tier 2' level system.

Other available promotions under the Ontario Power Authority (OPA) SaveONEnergy Program that will be promoted to homeowners include:

- a. Peaksaver/Peaksaver PLUS Programs.
- b. Free refrigerator and freezer pickup (for older less efficient models).
- c. OPA coupons for efficient light bulbs, lighting fixtures, power bars, low-flow aerators and showerheads, programmable thermostats and hot water pipe and tank insulation wraps.

The funding advances by the City will be net of any rebates or other incentives received by the homeowner, with the exception of rebates received to offset the costs of the energy assessment.

1.9. Quality Control

As a means of additional oversight to confirm that the funded improvements were completed, the POA will indicate that the City reserves the right to have a City official or third party contractor

¹ Enbridge Gas incentives are available for installations of eligible equipment completed before December 31, 2014.

² OPA incentives are available for installations of eligible equipment completed before December 31, 2013.

arrange with the property owner for an inspection. The property owner(s) is also responsible for keeping original copies of contractor invoices and photos of installed measures, especially for harder to verify measures like insulation, and be prepared to disclose this information to the City upon request.

1.10. Measurement and Verification

Via the POA, the property owner(s) must consent to providing the City with access to the property's utility usage data in order to monitor results and evaluate the Program's effectiveness for a period of five years after completion of the retrofit. Also, the property owner(s) agrees to participate in surveys and other follow-up activities to help the City evaluate the Program.

II. Multi-Residential Stream Program Design

2.0. Outline

The Multi-Residential Stream of the Program will reach out to multi-residential property owners across the City. The Program will be designed to facilitate property owner participation by providing for the self selection of contractors, a range and combination of retrofit measures that can be pursued and competitive financing terms. Contractors will align with the requirements specified by Toronto Hydro and Enbridge Gas in connection with the delivery of utility incentive programs in order to maximize opportunities to fund retrofits.

2.1. Objectives

The proposed Program design will balance the need to attract participation and addresses the objectives of enabling a higher incidence and depth of investment in apartment building retrofits to align with a number of City objectives to:

- increase the quality of rental housing stock;
- address housing affordability by mitigating pressures on rent increases due to rising utility costs;
- realize economic development opportunities in connection with investments in retrofitting of apartment buildings, including industry development and job creation;
- achieve green house gas emission reductions; and
- achieve a higher level of energy and water efficiency and conservation.

The projected benefits to the City may include improved housing affordability, enhanced energy security, extended economic development opportunities and improved environmental performance.

2.2. Program Eligibility

Rental apartment buildings located within the City of Toronto with five or more storeys would be eligible to apply to the Program.

Properties that are not required to pay property taxes would be ineligible and properties such as condominiums that have multiple single owners would not be eligible without commitment from all owners.

The LIC would be limited to 5% of the Current Value Assessment of the property as reflected in the most recently returned assessment roll.

The City would require that participating property owners do not apply for Above Guideline Increases for retrofit measures completed through the Program.

Additional Program eligibility criteria would include:

- All registered owner(s) of the property must consent to participating in the Program;
- Property tax, utility bills and all other payment obligations to the City for the past five years must be in good standing; and
- Specification that the property owner will obtain independent legal and financial advice with respect to participation in the Program.

2.3. Outreach and Building Selection Process

The Program will be available across the City with outreach focused in:

- Areas with a concentration of buildings with a preponderance of residents with low-incomes – to maximize outcomes aligned with city objectives);
- Areas designated by City Council as Residential Apartment Commercial (RAC) pilot project areas as part of the City-Wide Zoning By-law implementation - to complement existing outreach and staff activities in these areas maximizing Program delivery efficiencies
(<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.PG21.1>);
- Existing apartment sites with an application for infill development - the availability of the LIC would provide an option for securing improvements to an existing building without financial implication to Section 37³; and
- Existing apartment sites participating in Toronto Renovates⁴ - to leverage LIC funding to provide an opportunity for additional improvements.

³ Policies related to Section 37 provisions of the Planning Act are defined within the Official Plan and, as part of an application for new development on an apartment site, may include payment for improvements to an existing rental building on site. The LIC program could provide funding for the energy efficiency and water conservation improvements leaving Section 37 available for other improvements on site.

⁴ The Toronto Renovates Program, led by the City's Affordable Housing Office, offers funding for the repair and renovation of affordable rental apartment buildings in the City. Toronto Renovates funding extends beyond energy efficiency and water conservation measures and would be complemented by the LIC Program.

Staff will work with a number of parties in order to build Program awareness and effectively engage participants in the Program. Engagement activities will involve:

- Associations in the multi-residential sector encouraging performance improvements such as the Greater Toronto Apartment Association, Federation of Rental Housing Providers of Ontario (particularly through the Certified Buildings Program), Canadian Green Building Council, Building Owners and Managers Association (BOMA) (through BOMA BEST), etc.
- Connections to the Toronto Atmospheric Fund which has initiatives supporting improvements to multi-residential buildings in the City
- Channel Partners: Industry professionals, suppliers, Local Distribution Companies, Enbridge Gas
- Connections established through Social Development, Finance and Administration and Tower Renewal Program initiatives such as the Strong Neighbourhoods Strategy, OPA-funded Initiatives, and connections with the United Way Tower Neighbourhood Renewal Project, Tower Renewal Leaders Forum and Tower Renewal STEP Program participants
- Multi-residential property owners and property managers

2.4. Building Energy Assessment

As part of the Program application process, the City will require property owners to have a building energy assessment (also referred to as an energy audit) completed by a certified professional energy auditor that meets the eligibility criteria set out below. To ensure adherence to high professional industry standards, the City's requirements for the energy assessment are aligned with the energy audit requirements outlined by Toronto Hydro and Enbridge Gas for their respective incentive programs. This alignment will help to maximize opportunities for utility incentive funding for participating property owners.

To meet program eligibility requirements, the energy assessment and related report would need to be completed by a certified energy auditor with expertise in building energy efficiency who meets the following criteria:

- (i) a professional engineer ("P.Eng."), a certified engineering technologist ("CET"), a certified energy manager or a certified measurement and verification professional; with a minimum of three years of experience evaluating energy systems in buildings; or
- (ii) an engineer-in-training under the supervision of a P.Eng. or a CET, only if a qualified and experienced person as described in (i) above certifies and signs the energy assessment report; and
- (iii) the certified professional that meets (i) or (ii) must be independent of and third party to the Program applicant.⁵

Property owners will be responsible for engaging a certified professional to complete the building energy assessment and will assume any associated costs. Property owners may be able to offset these costs through incentives from Toronto Hydro or Enbridge as described in section

⁵ Excerpt from the requirements for the Toronto Hydro Audit Funding Incentive
<https://www.saveonenergy.ca/Business/Program-Overviews/Audit-Funding/Eligibility.aspx>

2.9. below. Property owners will also be responsible for any costs incurred by the City to verify the assessment report and these costs will be recovered as part of the Program administration costs.

The property owner will be required to provide the City with an energy assessment (energy audit) report that includes the identification of: recommended energy efficiency improvements (the measures), the anticipated energy and cost savings, the expected useful life of measures, the cost range for the recommended measures and eligibility for incentives.

The report provided by an eligible certified professional will be reviewed by either a third party or City staff to determine the reasonableness of the associated costs of the proposed retrofit project. In the instance where property owners are applying to the Program for measures that have received prior approval from Enbridge or Toronto Hydro, the Enbridge and/or Toronto Hydro approval would suffice as third-party verification for those measures.

2.5. Qualifying Energy Efficiency and Water Conservation Measures

In the Multi-Residential Stream of the Program, property owners would be able to propose a range of retrofit measures that would improve the quality of life for residents, improve building condition and help to reduce building operating costs. To qualify for LIC funding, retrofit measures proposed by the property owner must be identified by the energy assessment (energy audit) report, provided by an eligible certified energy auditor. The certified energy auditor must meet the criteria set out in Section 2.4.

Eligible retrofit measures would be required to demonstrate the potential to achieve cost-effective savings or to demonstrate how the retrofit measure compliments an overall state of good repair capital program for the building. For example, undertaking a window replacement and balcony door replacement may significantly improve resident comfort and address disrepair issues as well as generating energy savings.

Examples of the categories of retrofit measures supported through the Program include:

- i. Mechanical Systems (including electricity and HVAC related measures): boilers, bi-level lighting in parking garages, hot water circulation pump controls
- ii. Building Envelope improvements: window and balcony door replacement, solar walls, insulated cladding for exterior walls
- iii. Water Efficiency upgrades: low-flow toilets and fixtures

Retrofit measures that are not permanently affixed to the property or measures with an expected useful life of less than 5 years would not be eligible for the Program. The LIC term will not exceed the expected useful life of the retrofit measure to a maximum of 20 years and only costs of retrofits up to 5 percent of the Current Value Assessment of the property are eligible for the Program. By defining categories of retrofit improvements and associated measures, the City makes no guarantees of the materials, performance, cost-effectiveness or any warranty of the measures supported by the Program.

2.6. Completing the Retrofit Project

City will provide funding to property owners for approved retrofit projects consisting of eligible retrofit measures that meet the criteria outlined in section 2.5, and have been recommended as

part of the energy assessment report prepared by an eligible certified energy auditor and verified by the City or its third party agent. Contractors will be hired by the property owner. The City will not pre-qualify contractors or procure contractors to perform energy assessments or undertake retrofit projects on behalf of property owners in connection with this Program. The property owner will use the funds disbursed by the City to pay contractors directly. Note that none of the Program funding can be used to pay for the completion of the energy assessment and related report but utility company rebates may be available to offset this cost.

The City is not responsible for the work quality of any contractors hired in connection with this Program and assumes no liability for the works undertaken. All retrofit improvements must adhere to local codes and by-laws. The property owner is responsible for ensuring that hired contractors are licensed, bonded, and insured. Any issues that may arise relating to the quality of workmanship or post-installation performance of retrofit measures, for example, should be dealt with by the property owner and contractor.

2.7. Application Process

The steps below outline the process and requirements property owners need to follow as part of the Program. City staff will periodically review this process to ensure effective Program implementation and, where deemed appropriate, the City may make changes in its sole discretion.

Step 1: Prequalification

Property owners submit an on-line application form that will include the following information:

- Property address to confirm property is an eligible building type and ownership type.
- Property assessment roll number to confirm no outstanding payments owed to the City in the last five years.
- Acknowledgement that the property owner will obtain independent legal and financial advice with respect to participation in the Program.
- Acknowledgement of the application to the Program and consent to Program participation from all registered property owners.

Once the property owner has been prequalified by City staff, based on the above criteria, the City will provide a Notice to Proceed to the property owner.

Step 2: Building Energy Assessment and Funding Request Form

1. Building Energy Assessment

The property owner completes and provides a building energy assessment in accordance with Section 2.4 above and submits to the City the resulting Energy Assessment Report that the eligible certified energy auditor provides the property owner.

The report must include:

- recommended energy efficiency improvements (the measures),
- the anticipated energy and cost savings,
- expected useful life of measures,
- the cost range for the recommended measures

- potential eligibility for incentives.

2. Funding Request Form

Along with the Energy Assessment Report, the property owner also will need to submit a Funding Request Form that:

- identifies the improvements that the property owner intends to install based on the Energy Assessment Report;
- identifies the cost for each improvement; and
- specifies the amount of a prepayment (up to a maximum of 10% of the estimated cost of the work) that is being requested from the City upon signing the POA, if any. The City will determine at its sole discretion whether a prepayment will be advanced.

In the Funding Request Form, the property owner should specify if there is a need for several disbursements where the works involve multiple measures occurring over an extended period of time.

Following receipt of the Funding Request Form, the City will:

- confirm the eligibility of the works (e.g. items affixed to property);
- verify the reasonableness of retrofit costs and labour costs by consulting manufacturer pricing and prevailing labour rates; and
- calculate the administrative costs using a formula that apportions the cost to the City to operate this Program between participating properties as a percentage of the cost of the work undertaken relative to the percentage of the cost of the work to the overall budget for each Program Stream
(*n.b.* the "cost to the City" includes recurring costs and any non-recurring costs not covered by the grant funding that the City has obtained for the Program).

The above steps will enable the City to derive the funding amount up to the maximum of five percent of the property's assessed value to include in the Property Owner Agreement.

Step 3: Property Owner Agreement

After the City has confirmed the acceptability of the Building Energy Assessment Report and the Funding Request Form, the City will prepare a property owner agreement ("POA"), in accordance with Appendix B for the property owner(s) to review and sign.

Step 4: Completing Improvements

1. Initial Funding Disbursement

Following execution of the POA, the City will have the option at its sole discretion to provide the property owner with an initial disbursement to a maximum of ten percent of the estimated cost of the work that can be used to pay contractors (i.e. security deposit). If provided, such disbursement would be agreed upon in the POA. The property owner will be contractually obligated to repay this initial disbursement if the property owner does not complete the improvements.

The improvements must be completed within a reasonable timeframe, as stipulated in the POA, to be determined by the City in its sole discretion.

Where a property owner anticipates several disbursements over a longer period of time to complete the work, the City may require the property owner to enter into separate POAs and may impose a separate special charge on the property for each disbursement.

2. *Final Funding Disbursement*

As will be detailed in the POA, the City will provide the final disbursement only after the property owner provides:

- (i) proof that the work to install the approved retrofit measures has been properly completed and the work has been approved and accepted by the property owner; and
- (ii) a detailed invoice and specification of the actual costs and useful life for all the works.

The City would be responsible for verifying that the retrofit project specified in the POA has been completed, either through a City staff or a third party verifying agent contracted by the City. The City will also verify all eligible utility rebates to be paid to the property and ensure that the rebate amounts are not included in the final funding disbursement.

Step 5: LIC Repayment

Following the City Treasurer's periodic certification of the local improvement roll (which occurs after the improvements on a given set of properties are complete and the final amounts of funding are confirmed), the City Solicitor will submit a corresponding bill for Council to adopt a by-law pursuant to Section 35.14 of O.Reg 596/06 to impose the special charges on the participating properties. For each property included in the by-law, the Treasurer will then add to the City's tax roll for that property each year the portion of the imposed special charge that is due in that year. These collective steps will provide priority lien status for the annual amount that the Treasurer adds to the tax roll and will ensure that any subsequent property owner who was not a party to the POA is bound to pay that amount.

To facilitate repayment of the annual special charge, the POA will require property owners to sign-up for the pre-authorized payment plan option of 11 monthly instalments similar to the existing Program for property tax payments. At any time, a property owner can make advance payments, including a one-time payment of the total outstanding amount owing to clear the property of the LIC charge. Failure to make payments is treated with the same remedy as uncollected property taxes which may include penalties and interest charges.

2.8. LIC Disclosure

As indicated above, the subsequent owner of a property on which the City has imposed a special charge is required to pay the City the annual LIC amount even though that subsequent owner was not a party to the original POA. In addition to notice that the City will be giving in accordance with the provisions of O.Reg 596/06, the City also will take the following steps to ensure even greater transparency of the LIC to interested parties by:

- i) posting on the City's website notice of the special charge by-law to impose the charge on the property in advance of its introduction and after its adoption; and
- ii) updating the Tax Certificate to include the full LIC amount, amount payable in the current year, outstanding amounts owing and a note to reference the by-law pursuant to which the special charge was imposed.

2.9. Access to Utility Rebates & Incentives

The City has been in discussions with Enbridge Gas and Toronto Hydro and plans to work with these entities in the delivery of the Program to streamline property owner's access to the range of incentives and promotions available for multi-residential buildings. Incentives are subject to change and availability.

- i. Examples of incentives currently available from Enbridge Gas:
 - a. Preliminary evaluation of building energy efficiency and performance report modeling provided free of charge.
 - b. Retrofit incentives for up to 50% of eligible project cost to a maximum of \$100,000.
- ii. Examples of incentives currently available from Toronto Hydro:
 - a. Energy Audit incentives of up to 50% of the cost to a maximum of \$35,000 for eligible buildings.
 - b. Retrofit incentives ranging from \$400 - \$800 per kWh saved providing up to 50% of the project cost for approved measures.

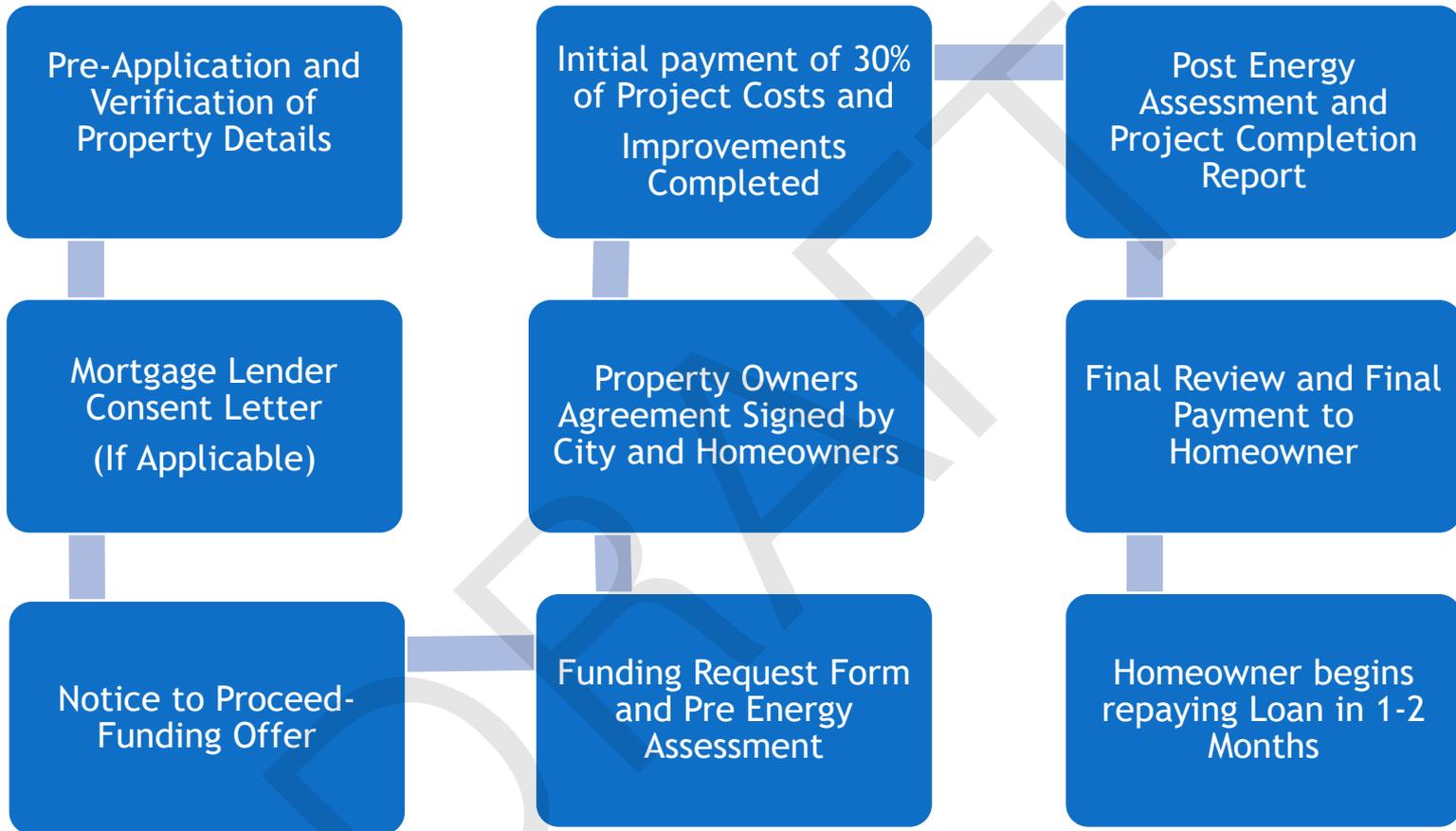
The funding advanced by the City will be net of any rebates or other incentives received by the property owners, with the exception of rebates received to offset the costs of the energy assessment.

2.10. Quality Control

As a means of additional oversight to confirm that the funded improvements were completed, the City reserves the right to have a City official or third party contractor complete an inspection. The property owner(s) is also responsible for keeping original copies of contractor invoices and may be required disclose this information to the City upon request.

2.11. Measurement and Verification

The property owner(s) must consent to providing the City with access to the property's utility usage data in order to monitor results and evaluate the Program's effectiveness for a period of 5 years after completion of the retrofit. Also, the property owner(s) agrees to participate in surveys and other follow-up activities to help the City evaluate the Program.



Welcome to the City of Toronto's Home Energy Loan Program (HELP) (the "Program"). The purpose of the Application is to determine eligibility for HELP funding to undertake energy efficiency, water conservation, and renewable energy works to your property. Please complete the following form and submit it to the City. Further instruction on how to submit this application is found below.

Additional information about HELP can be found by visiting www.toronto.ca/home-energy-loan. Any questions you may have can be directed to the HELP Program Manager by e-mailing homeenergyloan@toronto.ca or by calling 416-392-1826.

What's Next?

Upon receipt of your completed Application, the Program Manager will review your form to determine your property's eligibility based on the following:

- Property type, location and verification of property ownership
- Status of your property tax and utility bill payments
- Mortgage lender consent (if applicable)

After completion of the review, if you meet Program eligibility requirements, the Program Manager will provide you with a Notice to Proceed letter that identifies:

- The maximum eligible funding amount for your project
- A HELP file reference number for tracking your application as you proceed
- Information for contacting an Enbridge-approved Registered Energy Advisor to arrange for a Pre-Retrofit Home Energy Assessment, the cost of which is not eligible for re-imbusement under this Program

How to submit the Application (Choose one of the following methods)

Attach a copy of this form and email to:

homeenergyloan@toronto.ca

Mail a hardcopy of this form to:

Program Manager
Home Energy Loan Program
City of Toronto
Environment & Energy Division
55 John Street, 2nd Floor
Toronto, ON M5V 3C6

To hand deliver your application, please call 416-392-1826 to schedule an appointment.

Application

City of Toronto
Home Energy Loan Program

A - Applicant Information				
i. Applicant Primary Contact				
The person to whom all communication (i.e. letters, e-mails), including any legal notices under the Property Owner Agreement with the City, will be directed (the "Primary Contact").				
Primary Contact Name				
<input type="checkbox"/> Check this box if First Name and Last Name do not apply to you because you have either a registered Birth Certificate or Change of Name Certificate bearing a Single Name. Provide your name below.				
Single Name				
Mailing Address (Street Number, Street Name)				
City/Town	Province	Postal Code		
Email				
Telephone Number				
Relationship to Property	Owner <input type="checkbox"/>	Manager <input type="checkbox"/>	Tenant <input type="checkbox"/>	Other (specify)
Preferred Method of Communication	Telephone <input type="checkbox"/>	Email <input type="checkbox"/>		Mail <input type="checkbox"/>

Application

City of Toronto
Home Energy Loan Program

A - Applicant Information	
ii. Legal Name(s) of Property Owner(s)	
Please identify all property owners listed on the registered title for the property. All registered owners of the home must be identified in this section and consent to participate in HELP (the "Property Owner").	
Name of Property Owner 1:	
Name of Property Owner 2:	
Name of Property Owner 3:	

B - Property Information																				
i. Property Identifying Information (The "Property")																				
Only properties located within the geographic boundary of the City of Toronto can participate in HELP. Condominiums are not currently eligible.																				
Please identify the Property you are interested in improving.																				
Property Address (Street Number, Street Name)																				
City/Town																				
Province																				
Postal Code																				
Assessment Roll No.*	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 10%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;">-</td><td style="width: 10%;"> </td><td style="width: 10%;"> </td> </tr> </table>			-		-		-		-		-								
		-		-		-		-		-										
* You can find your assessment roll number by looking at the top left corner of your property tax bill. Provide the first 15 digits only.																				
																				

Application

City of Toronto
Home Energy Loan Program

B - Property Information	
ii. Property Type	
What best describes your Property (check one):	
	Fully Detached
	Semi-detached
	Townhouse
Multi-unit low-rise building	Number of Units
High-rise apartment building	Number of Units

B - Property Information			
iii. Utility Information			
What is the primary fuel used to heat the Property?			
Natural Gas	Electricity	Oil	Other (specify)
Who pays the utility bills for the Property? (Check all that apply)			
	Owner	Tenant	Third Party (i.e. condominium corporation)
Natural Gas Bill			
Electricity Bill			
Water Bill			

Application

City of Toronto
Home Energy Loan Program

C - Mortgage Lender Information		
Properties that are subject to a mortgage(s) will require the Property Owner(s) to obtain written consent from all mortgage lenders.		
Is the Property subject to a mortgage?	Yes	No
If “yes”, then list the lenders(s) holding these mortgages:		
Name of Financial Institution 1:		
Name of Financial Institution 2:		

Note: Failure to obtain written consent from all mortgage lender(s) could result in the Property Owner breaching a mortgage obligation with the lender. The City is not responsible or liable for such an outcome.

D - How Did You Hear About HELP?		
How did you first hear about the City of Toronto's Home Energy Loan Program?		
	City of Toronto/ Live Green Toronto websites	Energy Advisor
	Enbridge Gas/Toronto Hydro	Home Renovation Contractor
	Community Group	Social media (i.e. Instagram, Facebook, Twitter)
	Neighbour/Family/Friend	City staff
	Event	TTC advertising (subway, bus or transit shelter)
	Other (please specify)	

Application

City of Toronto
Home Energy Loan Program

E- Applicant Signature		
<p>I, _____ on behalf of the Property Owner(s) hereby:</p> <ul style="list-style-type: none"> Attest to having obtained consent from all property owners on registered title for the property to participate in the Program and am authorized to sign this document on behalf of all other property owners; Attest that all the information submitted as part of this application is truthful and accurate; Engage with the HELP Program Manager and/or other City staff on behalf of the property owner(s); Have read and understand the HELP Homeowner Guide and consent to the participation of the Property in the Program; and Understand and agree that any funding received under HELP will be repaid to the City by payment of a special charge added to the Property's tax account by the City. 		
Applicant Name Print first and last	Applicant Signature	Date (yyyy-mm-dd)

F – Voluntary Disclosure	
<p>Your responses to the following questions will help us to identify additional programs and services – offered by the City of Toronto, Toronto Hydro and/or Enbridge Gas – that you may be eligible for.</p>	
Are you (or a member of your household) over 65 years of age?	<input type="checkbox"/>
Are you (or a member of your household) a person with a disability?	<input type="checkbox"/>
You or a member of your household are on a fixed, precarious or stagnant income.	<input type="checkbox"/>
Internal Use Only	Referred Applicant <input type="checkbox"/> Yes <input type="checkbox"/> No

Environment & Energy collects personal information on this form under the authority of the City of Toronto Act, 2006, S.O. 2006, Chapter 11, Schedule A, s. 136 (c), Ontario Regulation 596/06, s. 35 under this Act, and the City of Toronto By-laws: 1105-2013 and 573-2017. Information collected will be used to assess and qualify Properties for the Program, followed by subsequent communication with the Applicant Primary Contact in order to access Program funding. The information will be shared with Revenue Services to verify ownership. Questions about this collection can be directed to the Program Manager, Public Energy – Existing Buildings, Metro Hall, 55 John Street, 2nd Floor Toronto, Ontario, M5V 3C6 or by telephone at 416-392-6861.



Property Owner Agreement (POA)

<p><i>As provided in the Pre-Application in Appendix E,</i></p> <p><i>Property Owners (hereinafter, collectively, the "Property Owner"):</i></p> <ol style="list-style-type: none">1. XXXXXX2. XXXXXX3. XXXXXX <p><i>Property Identifying Information (hereinafter, the "Property"):</i></p> <ol style="list-style-type: none">1. Address – XXXXXXXX 2. Assessment Roll – XXXXXXXXXX	<p><i>Certified as sufficient, in accordance with O.Reg. 596/06.</i></p> <hr/> <p><i>City Clerk</i></p> <p><i>Approved as to Form</i></p> <hr/> <p><i>City Solicitor</i></p>
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THIS PROPERTY OWNER AGREEMENT ("POA"), made in duplicate as of this **18th** day of **January 2019** ("Effective Date").

B E T W E E N:

PROPERTY OWNER

Of The First Part

- and -

CITY OF TORONTO

(hereinafter called the "City" and, together with the Property Owner, the "Parties")

Of The Second Part

WHEREAS:

1. Toronto City Council ("Council") at its meetings of July 16-19, 2013 and April 26-28, 2017, adopted Decisions EX 33.22 and PE 18.4, respectively (the "Decisions"), and enacted By-law 1105-2013, as amended from time to time (the "By-law"), pursuant to Section 35.5 and 35.6 of Ontario Regulation 596/06 to authorize the undertaking of energy efficiency, water conservation and renewable energy works on private residential property as local improvements under the Residential Energy Retrofit Pilot Program set out in the By-law (the "Program").

2. Among other things, the Decision authorizes the Deputy City Manager & Chief Financial Officer and the Chief Corporate Officer to negotiate and enter into POAs with consenting property owners on the terms and conditions set out in the Decision which are incorporated, as appropriate, into this POA.
3. The Property Owner owns the Property.
4. The Property Owner has submitted a complete Pre-Application and complete Funding Request for the Property to participate in the Program.
5. The City has reviewed the Pre-Application and Funding Request and has approved the participation of the Property in the Program.

In consideration of the mutual covenants herein contained, the Parties agree as follows:

1. Definitions

In addition to the terms defined in the various sections of this POA, the following terms have the following meanings unless inconsistent with the subject matter or context:

"Actual Cost" means the invoiced cost of completion of the Actual Improvements as set out in Appendices A2 and G;

"Actual Improvements" means the Eligible Improvements undertaken to the Property under the Program as indicated in Appendices A2 and G;

"Administrative Charge" means two percent of the Funding Amount, representing the Property's share of the City's cost of administering the Program;

"Applicable Laws and Requirements" means:

- (1) any statute or proclamation or any delegated or subordinate legislation, including regulations and municipal by-laws;
- (2) any lawful requirement of a Governmental Authority, including but not limited to those lawful requirements contained in POAs with the Governmental Authority or in approvals, certificates, permits and/or other authorizations issued by the Governmental Authority; or
- (3) any applicable judgment of a relevant court of law, board, arbitrator or administrative agency of competent jurisdiction,

each of which is binding and in force in the Province of Ontario;

"Approved Final Cost" has the meaning given to it in section 8, and as set out in Appendix A2;

"Assignment, Novation, and Release" means an agreement to assign this POA to a new owner of the Property and to release the Property Owner from his or her obligations under this POA, in the form attached as Appendix C;

"Business Day" means Monday to Friday inclusive, excluding statutory and other holidays, namely; New Year's Day; Family Day; Good Friday; Easter Monday; Victoria Day; Canada Day; Civic Holiday; Labour Day; Thanksgiving Day; Remembrance Day; Christmas Day; Boxing Day and any other day which the City has elected to be closed for business;

"Business Hours" means the hours between 8:30 am and 4:30 pm (Eastern time zone);

"City" means the City of Toronto;

"City-Provided Material" means any written documentation or other material that the City makes available generally to the public or specifically to the Property Owner in connection with the Program or this POA;

"Cost of Borrowing" means the City's notional cost of borrowing to fund the Program (set at the rate of foregone investment income to the City) charged to the Property by applying the Program Interest Rate to the Funding Amount over the Special Charge Term;

"Completion Date" means the date indicated in Appendix A1 by which the Work shall be completed, as that date may be extended pursuant to section 7 of this POA;

"Contractor" means an insured person retained by the Property Owner to complete the Work;

"Council" means Toronto City Council;

"Current Value Assessment" means the current value assessment of the Property as shown on the last returned assessment roll at the time of submitting the Pre-Application to the City;

"Eligible Improvements" means the energy efficiency, water conservation and renewable energy measures recommended in the Renovation Upgrade Report for the Property, as set out in Attachment 1 to Appendix F;

"Estimated Cost" means the estimated cost of completion of the Intended Improvements as set out in Appendices A1 and F;

"Estimated Lifetime" means the estimated useful life of the Intended Improvements, as set out in Appendix A1;

"Final Disbursement" means the disbursement of the remaining portion of the Funding Amount not already disbursed as the Initial Disbursement by the City to the Property Owner, as calculated pursuant to Section 10 and set out in Appendix A2;.

“Funding Amount” means the total funds provided to the Property Owner by the City under this POA, and calculated pursuant to Section 9 and set out in Appendix A2;

“Funding Request ” means a request in the City's prescribed form that the Property Owner has completed and submitted to the City's satisfaction for funding for the Work, which completed request is attached as Appendix F to this POA;

“Governmental Authority” means any federal, provincial or municipal government, parliament, legislature, or any regulatory authority, agency, ministry, department, commission or board or other representative thereof, or any political subdivision thereof, or any court or (without limitation to the foregoing) any other law, regulation or rule-making entity, having jurisdiction over the relevant circumstances, or any person acting under the authority of any of the foregoing (including, without limitation, any arbitrator);

“Incentive/Rebate” means any money received or to be received from a utility company, Governmental Authority, or Crown or municipal corporation (including the Canadian Mortgage and Housing Corporation) in respect of one or more of the Actual Improvements, but excluding any money intended to cover any portion of the cost of an energy assessment;

“Initial Disbursement” means disbursement to the Property Owner of the portion of the Funding Amount requested in the Funding Request of up to thirty percent of the Estimated Cost in advance of completion of the Work to be determined at the sole discretion of the Director, Environment and Energy Division, City of Toronto, in accordance with Section 5;

“Intended Improvements” means the Eligible Improvements intended to be undertaken to the Property under the Program as set out in Appendix F;

“Lifetime” means the effective useful life of the Work, as set out in Appendix A2;

“Local Improvement Roll” means the local improvement roll for the Property setting out the Special Charge (Actual), as prepared and corrected by the City and certified by the City Treasurer in accordance with the Regulation;

“MFIPPA” means the *Municipal Freedom of Information and Protection of Privacy Act* R.S.O. 1990, Chapter M.56, as amended;

“Payment Term” means the time period over which the Property Owner will pay the Special Charge (Actual) commencing on the earlier of the date of first payment of the Special Charge (Actual) and the first payment due date for the Special Charge (Actual,) and ending upon full payment of the Special Charge (Actual);

“Pre-Application” means an application in the City's prescribed form that the Property Owner completed and submitted to the City's satisfaction and that confirmed the Property's eligibility to participate in the Program, which completed form is attached as Appendix E to this POA;

"Pre-Authorized Property Tax Payment Program" means the City's payment program in which a Property Owner authorizes automatic withdrawals from his or her bank account to the City to pay property taxes and other charges collected through the tax bill as they become due and owing, such withdrawals to be made eleven times per calendar year;

"Program Documents" shall mean the documents comprising the Property Owners' request to participate in the Program and to obtain the requested funding, consisting of the:

- (1) Pre-Application, attached as Appendix E;
- (2) Funding Request, attached as Appendix F; and
- (3) Project Completion Report, attached as Appendix G;

"Program Interest Rate" means the following annual interest rates corresponding to each of the following Special Charge Terms, which interest rate will be fixed for the duration of the Special Charge Term:

Special Charge Term	Effective Interest Rate (Annual)
5 years	3.70%
10 years	4.10%
15 years	4.30%
20 years	4.40%

"Project Completion Report" means a report, in the City's prescribed form, that the Property Owner will prepare and submit to the City's satisfaction by the Property Owner to the City following completion of the Work, for determination by the City, in accordance with this POA, of any Final Disbursement for which the Property qualifies, which completed report will be attached as Appendix G to this POA;

"Property Owner-Provided Material" means any written documentation or other material that the Property Owner provides to the City, including but not limited to the Program Documents;

"Regulation " means Ontario Regulation 596/06, *Local Improvement Charges-Priority Lien Status* regulation made pursuant to the *City of Toronto Act, 2006*, as amended from time to time;

"Special Charge" means a charge imposed by the City on the property pursuant to the Regulation;

"Special Charge (Actual)" means the final Special Charge for the Property based on the Actual Improvements, as set out in Appendix B2, that City Council will impose on the Property;

"Special Charge (Estimated)" means the estimated Special Charge for the Property based on the Intended Improvements, as set out in Appendix B1;

"Special Charge Term" means the time period of five, ten or fifteen years, as selected by the Property Owner on Appendix F (Funding Request), commencing from the first payment due date for the Special Charge (Actual), which term cannot exceed the Lifetime of the Work;

"Substantially Performed" shall mean when the Work is ready for use or is being used for the purposes intended;

"Term" shall have the meaning ascribed to it in Section 2; and

"Work" means the Actual Improvements, collectively.

2. Term

This POA commences on the Effective Date and terminates at the end of the Payment Term. As provided by Section 22, the Term continues even if ownership of the Property transfers but, upon such transfer, the prior Property Owner may become eligible for a Release.

3. Interpretation

Each of the following Appendices to this POA are incorporated by reference into this POA as if they were fully stated herein:

Appendix A1 – Work – Intended
Appendix A2 – Work – Actuals
Appendix B1 – Special Charge – Estimated
Appendix B2 – Special Charge – Actual
Appendix C – Form of Assignment, Novation and Release
Appendix D – Utility Usage Release Forms
Appendix E – Pre-Application
Appendix F – Funding Request
Appendix G – Project Completion Report
Appendix H – POA Withdrawal Form
Appendix I – Pre-Authorized Property Tax Payment Program Application

Where there is a conflict between the language in any of the Appendices and this POA, the language of this POA shall prevail.

4. Property Owner's Initial Covenants:

The Property Owner covenants that the Property Owner:

- (1) is the lawful owner of the Property, and that if more than one person owns the Property, all Property Owners are parties to and have signed this POA;
- (2) has obtained the consent of all persons with a mortgage interest in the Property to participate in the Program, and has provided such consent to the City;
- (3) understands and agrees that:

- (a) the Special Charge (Estimated) as set out Appendix B1 is only an estimate of the Special Charge amount based on the Estimated Cost set out in Appendix A1;
 - (b) the City shall provide the Property Owner from time to time with updated versions of Appendices A2 and B2 (as new information set forth in Appendices A2 and B2 becomes known) to which the Property Owner will then be bound except as otherwise provided in this POA;
 - (c) the maximum Special Charge (Actual) eligible for the Property to be the lesser of ten percent of the Current Value Assessment or \$75,000; and
 - (d) the City will advise the Property Owner of the Special Charge (Actual) pursuant to Section 16.
- (4) understands and agrees that by entering into this POA, completing and returning to the City the Pre-Authorized Property Tax Payment Program Form attached as Appendix I, and providing a void blank cheque, the City will automatically enrol the Property Owner in the Pre-Authorized Property Tax Payment Program, which payment program will apply to payment of the Special Charge (Actual), the property taxes payable on the Property, and any other charges that are payable through the Property's tax bill.

5. Initial Disbursement

Prior to completion of the Work, the City will pay the Initial Disbursement indicated in Appendix A1 to the Property Owner.

6. Property Owner's Responsibility

The Property Owner understands and agrees that it is the Property Owner's sole responsibility to complete the Work by retaining a Contractor and to ensure that the Work is completed by the Completion Date.

The City takes no responsibility for and has no involvement in retaining a Contractor or any other person to complete the Work. The City also takes no responsibility for and has no involvement in the completion of the Work or in ensuring its completion, and the Property Owner is solely responsible for any action he or she may take that may impede or adversely affect the Contractor and the Contractor's ability to complete the Work in a timely manner. The Property Owner further understands and agrees that the City has no responsibility or liability to the Contractor or to the Property Owner for the completion of the Work including, without limitation, any delays, errors, or defects in the completion of the Work, any negligence of the Contractor in the completion of the Work, the Contractor's failure to complete the Work, any payment or failure to make payment to the Contractor or any other person in respect of completion of the Work, and the discharge of any liens on the Property.

The Property Owner is not an agent of the City.

The Property Owner understands and agrees that it is the Property Owner's sole responsibility to make payments for the completion of the Work, and that the City will make payments to the Property Owner in accordance with this POA only if all requirements for such payment have been met.

The City is not liable for any failure of the Work to achieve the expected energy savings or to qualify for a Final Disbursement under the Program. The Property Owner further understands and agrees that the maximum Funding Amount under the Program is the lesser of the three amounts set out in section 9 of this POA, and that the Property Owner may not receive payment from the City of all, or any, costs incurred by the Property Owner to complete the Work.

The City is not responsible for, and will not provide funding under the Program for, costs incurred by the Property Owner in retaining a certified energy advisor.

7. Completion Date

Provided that the Property Owner notifies the City in writing by at least 4:00 pm on the business day that is at least 10 business days before the Completion Date that the Property Owner is unable to Substantially Perform the Work by the Completion Date, and provided further that the Property Owner indicates the reasons for the delay and makes available whatever additional written or verbal information the City requires, then the City retains the right in its discretion on a case by case basis to extend the Completion Date to a later date.

8. Approved Final Cost

Within 14 days of the earlier of (a) the Work being Substantially Performed or (b) the Completion Date, the Property Owner shall provide the City with the Project Completion Report.

The City shall then verify the completeness and accuracy of the Project Completion Report, and will disqualify the Property from any funding under this POA if the Project Completion Report is incomplete or, in the City's sole opinion, provides inadequate information to qualify for funding under this POA.

The City may, in its sole discretion, make any reasonable adjustments to the Actual Cost as evidenced on the Project Completion Report, and may inspect the Work in accordance with Section 25 of this POA.

Actual Costs include equipment, materials labour and harmonized sales tax (HST), as verified and adjusted by the City in its sole discretion, will constitute the Approved Final Cost.

9. Funding Amount

The Funding Amount shall be the amount, net of any Incentives/Rebates, that is the lesser of:

- (1) the Approved Final Cost;
- (2) the Estimated Cost plus Five (5) per cent of the Estimated Cost; and
- (3) the highest dollar amount that does not cause the Special Charge (Actual) to exceed the lesser of either 10 percent of Current Value Assessment for the property or \$75,000, when the City calculates the Special Charge (Actual) as set forth in Section 11(1) of this POA.

10. Final Disbursement

The Final Disbursement shall be the Funding Amount as determined under Section 9 of this POA, less the Initial Disbursement.

The City will pay to the Property Owner the Final Disbursement within a reasonable period of time following receipt of the Project Completion Report, as determined by the City. Any City payment will be made by cheque payable to the Property Owner.

11. Special Charge

(1) Calculating the Special Charge

After the Final Disbursement Amount is paid to the Property Owner, the City will calculate the Special Charge (Actual) for the Property.

The Special Charge (Actual) shall equal the sum of (a) the Funding Amount, (b) the Cost of Borrowing, and (c) the Administrative Charge.

(2) Notice of the Special Charge

The City will advise the Property Owner of the proposed Special Charge (Actual) pursuant to Section 16.

(3) Consent to Levy of the Special Charge

The Property Owner consents to the Special Charge (Actual) being levied by the City on the Property pursuant to the Regulation, and agrees to pay the Special Charge (Actual) in equal annual amounts over the Special Charge Term, by making 11 monthly payments per year under the Pre-authorized Property Tax Payment Plan. The Property Owner understands that such monthly payments will be in an equal amounts, except for the final payment which may be greater or lower to address any remainder amounts.

(4) Early Payment of Special Charge

At any time after the Special Charge (Actual) is levied on the Property by the City, the Property Owner can discharge the Special Charge (Actual) and end the Payment Term by making a one-time single lump sum payment in an amount determined by the City. As permitted by Section 35.8 of the Regulation, the amount of the payment will be the present

value of the Special Charge (Actual) still outstanding, calculated by the City using the Program Interest Rate as the discount rate.

(5) Apportioning the Special Charge

The City apportions the Special Charge (Actual) on the basis of one Special Charge per property.

12. Property Owner's Additional Obligations:

The Property Owner shall:

- (1) Complete the Work by the Completion Date;
- (2) Remain enrolled and in good standing in the City's Pre-authorized Property Tax Payment Program for the duration of the Payment Term;
- (3) If the Property Owner does not complete the Work or otherwise does not put the Property in a position where the City can impose the Special Charge on the Property, repay in its entirety all funds received from the City pursuant to this POA or under the Program within ten business days of receipt of a demand for payment from the City;
- (4) Provide the City access to all information related to energy usage and water consumption at the Property for the period commencing in the calendar year prior to the commencement of the Work through to five years following the Completion Date;
- (5) Complete the Utility Usage Release Forms attached in Appendix D and submit them to the City; and
- (6) Notify any party to whom the Property Owner plans to transfer the Property, whether a buyer or otherwise, in advance of such transfer that the Special Charge (Actual) has been, or will be imposed on the Property pursuant to the Program and the Regulation.

13. Incentives/ Rebates

The Property Owner agrees to apply for all Incentives/Rebates for which the Property may be eligible, and agrees, to provide the City prior to submission of the Project Completion Report with information on all Incentives for which it has applied, and for which it has been approved.

Where the Property Owner has sought or received Incentives/Rebates separate and apart from those disclosed to the City in advance of the City making the Final Disbursement so that the Property Owner had not made the City aware of any such Incentives/Rebates in time for the City to deduct the amount of such Incentives from the Final Disbursement, the Property Owner hereby consents to the assignment to the City of all such Incentives/Rebates payable to the Property Owner, and agrees to direct the provider of the Incentive/Rebate to make payment of all such Incentives/Rebates to the City.

In addition, the Property Owner consents to the City communicating with the provider of such Incentive/Rebate any information pertaining to the Property Owner's request for or receipt of such Incentive/Rebate and to the Property Owner's application for and participation in the Program, including any information included in the Program Documents.

14. Withdrawal

The Property Owner may withdraw from this POA by completing the withdrawal form in Appendix H and submitting to the City Clerk by mail or in person so long as such submission arrives date-stamped no later than eight business days from the date the Property Owner submitted the signed POA to the City by mail or in person.

15. Certified POA

Once certified by the City Clerk, this POA is final and binding.

16. Notice of Local Improvement Roll

The City shall give notice to the Property Owner of the proposed Local Improvement Roll before the Special Charge (Actual) is imposed. The proposed Local Improvement Roll shall set out the proposed Special Charge (Actual) to be levied on the Property in respect of the undertaking of the Work on the Property under this POA and under the Program.

Upon receipt of notice of the proposed Local Improvement Roll, the Property Owner has 21 days to provide to the City written objections or proposed revisions to the proposed Local Improvement Roll.

The City's Treasurer shall consider any objections and proposed revisions to the proposed Local Improvement Roll as may be made by the Property Owner, and may make any corrections to the proposed Local Improvement Roll which the Treasurer considers fair and equitable as a result of such objections and proposed revisions. Once any such corrections are made, the Treasurer shall certify the Local Improvement Roll.

The certified Local Improvement Roll and the Special Charge (Actual) set out in it shall be final and binding on the Property, and the Work is conclusively deemed to have been lawfully undertaken in accordance with the Regulation.

17. Special Charges added to the Tax Roll

Pursuant to the *City of Toronto Act, 2006* and the Regulation, once levied, the Special Charge (Actual) can be added by the City to the tax roll for the Property. Once added to the tax roll the Special Charge (Actual) has the same priority to all other liens as property taxes, and will become an obligation of all subsequent owners of the Property.

The City will note the full amount of the Special Charge (Actual) on the tax roll, and this amount will appear on any tax certificates requested for the Property.

The Special Charge (Actual) will be collected through the tax bill for the Property, and payment will be due and payable at the same time as property tax payments for the Property.

The portion of the Special Charge (Actual) annually payable will be added to the tax roll for the Property and will form a priority lien on the property if not paid when due.

18. Severed Lands

Where the Property Owner seeks to sever the Property, the Special Charge (Actual) shall be:

- (1) Reapportioned among the new lots in any manner the City considers just and equitable, having regard to the relative degree of benefit received by each of the new lot, and a new special charge will be imposed on each of the new lots in the amount apportioned to each lot; or
- (2) Paid in full at the time of the City approval for the severance.

19. Corrections to Special Charges and to the Local Improvement Roll

- (1) The City may correct the Special Charge (Actual) pursuant to the Regulation, if the City Treasurer determines that the Special Charge (Actual) is incorrect due to a gross or manifest error.
- (2) The City Treasurer will make any amendments and corrections to the Local Improvement Roll to reflect any correction to the Special Charge (Actual) made pursuant to subsection (1), and any apportionment of a Special Charge (Actual) pursuant to Section 18, and shall certify the corrected Local Improvement Roll.

20. Above Guideline Rent Increase Restriction

If applicable, the participating Property Owner understands and agrees not to apply for an above-guideline rent increase pursuant to the *Residential Tenancies Act* to assist the Property Owner in paying the Special Charge (Actual) or any other cost associated with the Work.

21. Late Payment Penalties and Events of Default

- (1) If the Property Owner fails to make any payment owing to the City under this POA on the date it becomes due, the payment is subject to the following late payment penalties:
 - (a) a \$40 fee for non-sufficient funds being in the Property Owner's account under the Pre-authorized Property Tax Payment Program;
 - (b) a one-time penalty of 1.25% of the unpaid amount on the first day of default; and
 - (c) an additional 1.25% of the unpaid amount on the first day of each month thereafter that the amount remains outstanding.

- (2) The City may declare that an event of default has occurred (an “Event of Default”) if the Property Owner:
- (a) fails to meet any of its obligations under this POA, including without limitation
 - (i) failure to make any payment to the City as it becomes due;
 - (ii) failure to reimburse the City all portions of the Funding Amount that the City has provided to the Property Owner in accordance with Section 10 in the event that the Property Owner has not completed the Work or otherwise has not put the Property in a position for the City to apply a Special Charge; or
 - (iii) failure to adhere to its confidentiality obligations under this POA; or
 - (b) makes false or misleading representations or submits false or misleading information to the City.
- (3) In the event that the City has declared that an Event of Default has occurred, the City may immediately, in its sole discretion, exercise one or more of the following remedies:
- (a) terminate its obligations under this POA and, if applicable, demand repayment of all monies provided under this POA to the Property Owner to date;
 - (b) pursue a court action to recover all damages and/or demand specific performance; and
 - (c) add to the property tax roll for the Property the Initial Disbursement as a fee, as provided for in Chapter 441 of the Toronto Municipal Code, owed to the City pursuant to this POA.

22. Sale and Release

The Property Owner shall have the unfettered right to sell, transfer, charge, and mortgage, encumber or otherwise deal with the Property without the prior consent of the City.

In the event the Property is transferred to a new owner, the Property Owner shall continue to be liable to the City for all Property Owner obligations and liabilities under this POA until the City signs the Assignment, Novation and Release, thereby releasing the Property Owner from obligations and liabilities under this POA.

The City shall not sign the Assignment, Novation and Release until all of the following conditions are met to the satisfaction of the City:

- (1) the Property Owner provides the City with a registered copy of the Transfer of the Property from the Property Owner to a new owner;

- (2) the Special Charge (Actual) and other amounts due and owing under this POA for the portion of the Payment Term during which the Property Owner owned the Property are fully paid; and
- (3) the Property Owner provides the City with an original Assignment, Novation and Release in the form attached as Appendix D, executed by the Property Owner and the new owner.

The Property Owner acknowledges that nothing in this POA interferes with the City's rights, benefits and powers under the Regulation and *City of Toronto Act, 2006* with respect to the Property or the Special Charge (Actual), and that the City shall not be prevented from or prejudiced in carrying out its statutory rights and responsibilities thereunder.

23. Ownership, Disclosure, and Confidentiality of Written Material

(1) Ownership and Compelled Disclosure of Property Owner-Provided Material

Once in the possession and/or under the control of the City, any Property Owner-Provided Material becomes the property of the City and, consequently, subject to the Municipal Freedom of Information and Protection of Privacy Act ("MFIPPA"). Pursuant to MFIPPA, the public has a right to seek access to these documents, in whole or in part, which the City must then disclose in accordance with the provisions of MFIPPA. Please note that those provisions safeguard against disclosure of personal information but exceptions to such safeguards do apply.

Moreover, the City may be required to disclose these documents pursuant to other Applicable Laws and Requirements regarding disclosure of information and production of documents, including (but not limited to) the Federal Courts Rules, the Ontario Rules of Civil Procedure, the Criminal Code of Canada, subpoenas and summonses to witness, court orders, and any other federal, provincial or municipal statutory power that compels the City to disclose such information and documents.

The City reserves the right to make all final disclosure decisions including those pursuant to MFIPPA.

(2) MFIPPA Designation of Property Owner-Provided Material

If the Property Owner finds that any of the Property Owner-Provided Material, in whole or in part, contains information exempt from disclosure under MFIPPA (pursuant to Section 10 of MFIPPA or any other section) or the other disclosure obligations discussed above, then the Property Owner should clearly identify the exempted information to the City. Doing so will more easily enable the City to notify the Property Owner in advance of any disclosure the City may be compelled to undertake.

The City shall assume no liability that may arise from a Property Owner failing to identify information to which any of these disclosure obligations stated above applies and to provide the necessary information in support thereof.

(3) Ownership and Confidentiality of City-Provided Materials

All City-Provided Material in connection with, or arising out of, the Program or this POA:

- (a) is and shall remain the property of the City;
- (b) must be treated by the Property Owner as confidential and not disclosed to anyone other than the Property Owner or City of Toronto staff (which does not include City Council Members or their staff) without written consent from the City unless such City-Provided Material was obtained in a manner available generally to the public (such as from the City's website); and
- (c) other than in connection with the Program, must not be used or disseminated by the Property Owner for any purpose, including (but not limited to) for purposes of lobbying (as defined in Chapter 140 of the Toronto Municipal Code) on this or related matters without the express written permission of the City.

This provision survives the termination of the POA for five (5) years, beginning with the date on which the POA terminates.

24. Audit

The City may audit this POA and related records. The Property Owner shall at all times during the term of the POA, and for a period of two (2) years following the Payment Term, keep and maintain records of the Work performed pursuant to this POA. This shall include proper records of invoices, vouchers, Incentives/Rebates, timesheets, and other documents that support actions taken by the Property Owner. The Property Owner shall at its own expense make such records available for inspection and audit by the City at all reasonable times.

25. Inspection

Until the date that is three (3) years from the Completion Date, the City reserves the right, upon 14 days written notice to the Property Owner, to have a City Official or third party contractor retained by the City inspect the Work. Such inspection is solely for the purpose of verifying the Work stated in the Project Completion Report. By conducting such inspection, the City is not making any representations or warranties with respect to the Work and is not liable for any aspect of the Work.

26. Indemnities

The Property Owner indemnifies and saves harmless the City of Toronto, its Mayor, Members of Council, officers, employees, and agents from and against any losses, liens, charges, claims, demands, suits, proceedings, recoveries and judgements (including legal fees and costs) arising from or related to the Property Owner's performance or non-performance of its obligations, including breach of any confidentiality obligations under the POA or infringement, actual or alleged of any Canadian, American or other copyright, moral right, trade-mark, patent, trade secret or other thing with respect to which a right in the nature of intellectual/industrial property exists.

Upon assuming the defence of any action covered under this section the Property Owner shall keep the City reasonably informed of the status of the matter, and the Property Owner

shall make no admission of liability or fault on the City's part without the City's written permission.

27. Survival

In addition to any obligations set forth in this POA that by their nature survive the completion of the Work or termination of this POA or otherwise expressly survive, those obligations set forth in Sections 23 (Ownership and Confidentiality of City-Provided Material), 24 (Audit), and 26 (Indemnities) shall continue to bind the Property Owner notwithstanding the completion of the Payment Term, the release by the City of the Property Owner of its obligations under this POA, or the termination of this POA.

28. Severability

If any provision of this POA or the application thereof to any person or circumstances is found to be invalid, unenforceable or void by any court or tribunal of competent jurisdiction, such provision shall be deemed severable and all other provisions of this POA shall be deemed to be separate and independent therefrom and continue in full force and effect.

29. Further Assurances

The Property Owner agrees that it will do all such acts and execute all such further documents, conveyances, deeds, assignments, transfers and the like, and will cause the doing of all such acts and the execution of all such further documents (including waivers of moral rights) as are within its power to cause the doing or execution of, as the City may from time to time reasonably request, in writing, and as may be necessary or desirable to give full effect to this POA.

30. Notices

Any demand or notice to be given pursuant to this POA shall be duly and properly made and given if made in writing and either delivered to the party for whom it is intended to the address as set out below or sent by prepaid registered mail addressed to such party as follows:

in the case of the City:

- (1) City of Toronto
55 John Street,
Metro Hall, 2nd Floor
Toronto, Ontario M5V 3C6
Attention: Program Manager, Home Energy Loan Program, Environment & Energy Division

- (2) In the case of the Property Owner, to the Primary Contact indicated in the Pre-Application or to such other addresses as the Parties may from time to time notify in writing, and any demand or notice so made or given shall be deemed to have been

duly and properly made or given and received on the day on which it shall have been so delivered or, if mailed, then, in the absence of any interruption in postal service in the City of Toronto affecting the delivery or handling thereof, on the day following three business days following the date of mailing.

31. Successors and Assigns

The POA shall endure to the benefit of and be binding upon the Parties hereto and their respective heirs, executors, administrators, successors and assigns.

32. Appendices

The Appendices to this POA shall constitute an integral part of this POA and all expressions defined in this POA shall have the same meanings in such attachments. In the case of a conflict between the body of this POA and any attachment, the provisions of the body of this POA shall take precedence.

33. Governing Law

This POA shall be governed by the laws of the Province of Ontario. Any dispute arising out of this POA will be determined by a court of competent jurisdiction in the Province of Ontario.

34. Entire POA

The POA forms the entire agreement between the Parties. In the event of conflict or inconsistency between the POA and any other agreement between the Parties, the POA shall prevail.

35. Amendments

The Parties can mutually agree to amend this POA.

36. Headings, subheadings, index numbers, reference numbers

All headings, subheadings, index and reference numbers in POA and attachments are given for the convenience of the Parties and as such must be taken only as a general guide to the items referred to and not relied upon. It must not be assumed that such numbering is the only reference to each item, but the POA as a whole must be fully read in detail for each item.

IN WITNESS WHEREOF the Parties have executed this POA as of the Effective Date.

SIGNED AND DELIVERED

CITY OF TORONTO

*Authorized by **Item EX 33.22** as adopted by City of Toronto Council on **July 16-19, 2013**, and by **Item PE 18.4** as adopted by City of Toronto Council on **April 26-28, 2017**, and enacted by **By-law 1105-2013**, as amended from time to time, pursuant to Section 35.5 and 35.6 of Ontario Regulation 596/06.*

Josie Scioli
Deputy City Manager

City Clerk

City Clerk

PROPERTY OWNER

Property Owner Name

Property Owner Name

APPENDIX A1

IMPROVEMENTS -- INTENDED

1. Intended Improvements

Intended Improvements	Estimated Cost	Estimated Lifetime
Exterior Wall Insulation	\$12,675.00	30
Attic Insulation		30
Cathedral/Flat Ceiling Insulation		30
Basement Insulation		30
Basement Header Insulation		30
Furnace/Boiler System		\$58,000.00
Water Heater	20	
Central Air Conditioner	15	
Heat Recovery/Energy Recovery Ventilator	-	
Windows(18)/Doors(4)	\$47,855.00	
TOTAL	\$118,530.00	-

2. Estimated Incentive/Rebate

The Property Owner may be eligible to receive an incentive/rebate in the amount of \$1,100.00 from Enbridge Gas and \$650.00 from Independent Electricity System Operator.

3. Completion Date

The Property Owner will complete the above Intended Improvements by 01/05/2018.

4. Initial Disbursement

An Initial Disbursement of \$35,559.00 was calculated as follows:

30% of the Total Estimated Cost of the Intended Improvements (\$118,530.00)

APPENDIX B1

SPECIAL CHARGE -- ESTIMATED

The Special Charge (Estimated)² is [AMOUNT].

The Special Charge (Estimated) was calculated as follows:

Special Charge Term	years
Program Interest Rate	%
Estimated Funding Amount	
Cost of Borrowing	
Administrative Charge	
Special Charge (Estimated)	
Monthly Payment (Estimated) (11 monthly payments per year)	

² As per Section 14 of the POA, the City will notify the Property Owner of the Special Charge (Actual) prior to certification of the charge and adoption of the by-law to impose the charge on the Property.

APPENDIX B2

SPECIAL CHARGE -- ACTUAL

The Special Charge (Actual) is [AMOUNT].

The Special Charge (Actual) was calculated as follows:

Special Charge Term	years
Program Interest Rate	%
Actual Funding Amount	\$
Cost of Borrowing	\$
Administrative Charge	\$
Special Charge (Actual)	\$
Monthly Payment (Actual) (11 monthly payments per year)	\$

APPENDIX C

FORM OF ASSIGNMENT, NOVATION, AND RELEASE

(The current Property Owner of the Property can reproduce and use this form to satisfy the requirements in Section 22 (Sale and Release). Please inquire with City staff if an electronic version is needed.)

THIS AGREEMENT made as of the ___ day of ____, 20__.

A M O N G:

(the “**Assignor**”)

- and -

(the “**Assignee**”)

- and -

The City of Toronto
(the “**City**”)

WHEREAS:

A. Pursuant to City of Toronto Bylaw 1105-2013, the Assignor applied to participate in the City of Toronto’s Program and consequently, entered into a Property Owner Agreement with the City of Toronto on _____ (the “POA”), a copy of which is attached as Schedule A, to obtain funding for energy efficiency and water conservation improvements at the Property (the “Funding Amount”);

B. The City of Toronto adopted Bylaw _____ (the “Bylaw”) to impose on the Property a Special Charge in the amount of _____ that requires the owner of the Property to repay the Funding Amount, together the Cost of Borrowing and the Administrative Charge;

C. The POA includes additional obligations that are separate and apart from the obligation to repay the Special Charge (Actual) that the Bylaw has imposed on the Property

NOW THEREFORE in consideration of the transfer of the Property from the Assignor to the Assignee, the City's release of the Assignor, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties covenant and agree as follows:

1. **Definitions.** Unless otherwise defined herein, all capitalized terms used in this POA shall have the respective meanings ascribed to them in the POA.

2. **Assignment of POA.** The Assignor does hereby absolutely and unconditionally assign, novate, transfer, set over and convey unto the Assignee, for its sole use and benefit, all of the Assignor's right, title, interest, obligations and liabilities in, to and under the POA from and after the date hereof.
3. **Assumption of POA.** The Assignee hereby accepts this assignment contained in Section 2 hereof and covenants and agrees with the Assignor that, from and after the date hereof, the Assignee assumes and is responsible for and will perform, observe, satisfy, discharge and pay as and when due the obligations and liabilities of the Assignor under the POA arising from and after the date hereof.
4. **Consent of City.** The City (in its capacity as an existing party under the POA), effective from and after the date hereof, hereby consents to the assignment of all the Assignor's right, interest, obligations and liabilities in, to and under the POA, and accepts in full satisfaction the Assignee as a party to the POA in substitution for the Assignor.
5. **Agreement between the City and Assignee.** The Assignee covenants with the City that the Assignee will perform, observe, satisfy, discharge and pay as a when due the obligations and liabilities of the Property Owner under the POA arising from and after the date hereof. Among other things, the Assignee will provide information necessary for automatic enrolment in the Pre-Authorized Property Tax Payment Program as discussed further in the POA.
6. **Release of the Assignor.** In accordance with Section 22 of the POA, the City hereby releases and discharges the Assignor of and from the observance and performance of the covenants, agreements and obligations under the POA, effective from and after the date hereof.
7. **Joint and Several Liability.** The liability of each entity comprising the Assignee hereunder shall be joint and several.
8. **Successors and Assigns.** This Assignment, Novation and Release shall enure to the benefit of and shall be binding upon the Parties hereto and their respective heirs, executors, administrators, successors and assigns.
9. **Governing Law.** This Assignment, Novation and Release shall be construed and enforced in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein and shall be treated in all respects as an Ontario contract.
10. **Counterparts.** This Assignment, Novation and Release may be executed in several counterparts and by facsimile transmission of an originally executed document, each of which shall be deemed to be an original, and such counterparts shall constitute one and the same instrument.
11. **Further Assurances.** Each of the Parties hereto shall from time to time hereafter and upon any reasonable request of the other, execute and deliver, make or cause to be made all such further acts, deeds, assurances and things as may be required or necessary

to more effectually implement and carry out the true intent and meaning of this Assignment, Novation and Release.

12. **Headings, Extended Meanings.** The headings in this Assignment, Novation and Release are inserted for convenience of reference only and shall not constitute a part hereof and are not to be considered in the interpretation hereof. In this Assignment, Novation and Release, words importing the singular include the plural and *vice versa*; words importing the masculine gender include the feminine gender and vice versa; and words importing persons include firms or corporations and *vice versa*.

IN WITNESS WHEREOF the Parties hereto have executed this Assignment, Novation and Release as of the date first above-written.

ASSIGNOR

In the presence of:

By: _____
Name: _____ Witness name: _____

ASSIGNEE

By: _____
Name: _____ Witness name: _____

CITY OF TORONTO

By: _____
Name: _____

Attach copy of the POA and mark it Schedule "A"

APPENDIX D

UTILITY USAGE RELEASE FORM

I am the person responsible for utility accounts at **Property Address** in Toronto, Ontario (the "Property") and am authorized to consent to the release of utility account information for the Property to the City of Toronto.

As part of my participation in the City of Toronto's Home Energy Loan Program, I hereby authorize the City of Toronto to access the following accounts for the Property:

natural gas account # _____

and share data interdivisionally for the following municipal account:

water account number # _____

and all related historical data, including but not limited to consumption, type of reading and costs for the address listed above for a period commencing 01/01/2017 and ending 01/05/2023. The City of Toronto will contact the utility provider to request the data.

I also request that electronic copies of the bills for these accounts be sent to the City of Toronto. I understand that there will be no charge to me for this service.

I _____ authorize the utility providers checked above to release the information for the account numbers listed above and/or on the attached utility bills to the City of Toronto for the purpose of the City's Home Energy Loan Program and related studies. I understand that where the City of Toronto uses this information in publications or presentations, any information relating to the Property will be presented in a manner which aggregates the data and/or does not allow individual buildings to be identified, unless otherwise agreed to in writing by the owner or person responsible for the utility accounts at the Property.

Signature

Printed Name

Date



Consent to Disclose Electricity Account Data

I am the customer of record for my electricity account(s) at **Property Address** in Toronto, Ontario (the "Property") and am authorized to consent to the release of the following electricity account information (the "Electricity Account Data") for the Property. (Check one or more boxes, as applicable.)

- Historical consumption data
- Historical billing/cost data

I _____ hereby consent and authorize Toronto Hydro to release to Company identified below my Electricity Account Data for the designated period commencing 01/01/2017 and ending 01/05/2023 for the purpose of monitoring and evaluating electricity consumption as part of the customer's participation in the City of Toronto's Home Energy Loan Program and any related services, studies, publications or presentations.

I understand and agree that such Electricity Account Data may reveal information about the way electricity is used at the Property. I also understand and agree that once the data has been provided to Company, Toronto Hydro will have no control over and no responsibility for the Company's use of the Electricity Account Data. Toronto Hydro shall not be responsible for monitoring or taking any steps to ensure that Company is maintaining the confidentiality of the Electricity Account Data or is using the Electricity Account Data as intended by me.

Authorized Recipient of Electricity Account Data ("Company"):

The City of Toronto

By my signature, I affirm that I am the customer of record. I agree that this consent, whether in paper or electronic form, may be signed electronically and it will be considered valid and authentic as if an original signature.

Signature of customer of record

Printed name & title

Date:

PLEASE FAX COMPLETED FORM TO: [ENTER FAX #] OR BY EMAIL TO [ENTER EMAIL]

* Although every attempt is made to ensure the accuracy of the customer's Electricity Account Data, Toronto Hydro and its Affiliates (as such term is defined in the *Business Corporations Act (Ontario)*) shall not be liable under any circumstances for any losses, liabilities, claims, causes of action and/or expenses that may arise from any errors or omissions contained in such information or data or that may result from anyone using this information or data. "Toronto Hydro" means Toronto Hydro-Electric System Limited. The star design is a registered trademark of Toronto Hydro Corporation. Used under licence.

APPENDIX E
PRE- APPLICATION

Insert completed forms here.

DRAFT

DRAFT

APPENDIX F
FUNDING REQUEST

Insert completed forms here.

DRAFT

DRAFT

DRAFT

APPENDIX G

PROJECT COMPLETION REPORT

Insert completed forms here.

DRAFT

APPENDIX H

POA WITHDRAWAL FORM

(as permitted pursuant to subsection 35.4(4) of Ontario Regulation 596/06)

IF YOU INTEND TO WITHDRAW FROM THE POA, THIS FORM MUST BE COMPLETED AND SUBMITTED NO LATER THAN 8 BUSINESS DAYS AFTER YOU SUBMIT YOUR SIGNED POA TO THE CITY

I/we, as signator(ies) to a Property Owner Agreement with the City of Toronto,

_____ Dated [insert Effective Date], concerning my/our property identified as

_____ [insert Assessment Roll Number] (the "POA"), withdraw my/our

signature(s) from the POA.

Property Owner 1	Title (if auth. rep. of corp. owner)	Date
Property Owner 2, if applicable	Title (if auth. rep. of corp. owner)	Date
Property Owner 3, if applicable	Title (if auth. rep. of corp. owner)	Date

Send completed form to:

City Clerk, Toronto City Hall, 13th floor, West Tower, 100 Queen St. West,
Toronto, ON M5H 2N2

APPENDIX I

PRE-AUTHORIZED PROPERTY TAX PAYMENT PROGRAM APPLICATION

DRAFT

Pre- Authorized Tax Payment

Conditions

I/we authorize the City of Toronto Revenue Services Division (herein referred to as the "City") and the financial institution designated (or any other financial institution I/we may authorize at any time) to begin deductions as to the type of plan selected on this application (namely the two, six or eleven instalment plan).

I/we understand that the City will issue a tax bill indicating the amount of my/our instalments and the dates of withdrawal from my/our financial institution account. The City will notify me/us in writing at least 10 days prior to the date of the withdrawal if the amount is to be increased. **I/we can waive our right to this notice requirement if I/we authorize the city verbally.**

I/we understand that I/we may cancel my/our PAD agreement by providing a signed written notice to the City at least 15 days before the next debit is scheduled and the notice must be sent to the City address indicated on this form. I/we also understand that the City may terminate this authority if any of my/our payments are returned by my/our financial institution as per the conditions of enrolment in the City's Pre-Authorized Tax Payment Program. I/we may obtain a sample cancellation form or more information on my/our right to cancel this PAD agreement at my/our financial institution or by visiting www.cdnpay.ca, the Canadian Payments Association website or www.toronto.ca/taxes/property_tax, the City's website.

I/we have certain recourse rights if any debit does not comply with this agreement. For example, I/we have the right to receive reimbursement for any PAD that is not authorized or is not consistent with this PAD agreement. To obtain a form for a Reimbursement Claim, or for more information on my/our recourse rights, I/we may visit www.cdnpay.ca or may contact my/our financial institution.

I/we understand that all taxes must be in good standing to qualify.

Important Information

The application date will be the date received if not completed.

You will receive written confirmation of your enrolment in this program within 30 days of receipt of your application form.

Financial institution/banking information is not printed on the bills.

Line of credit accounts and credit card cheques cannot be used for pre-authorized payments.

The payment plan is not transferable to another account.

Supplementary/Omitted tax bills and statements or other charges cannot be paid through this program.

You must complete, sign and return this full form to register. Incomplete forms will be returned.

Submit Applications and Documents

Mail: Revenue Services
Box 2500, Terminal A
Toronto, Ontario M5W 1H2

Fax: 416-392-0799
(sending personal information by fax is not a secure means of transmission)

Personal information on this form is collected under the authority of the City of Toronto Act, S.O. 2006, Chapter 11, Schedule A, s. 136 (b) & (c) and City of Toronto By-law No. 4-1998. The information will be used to administer the Pre-Authorized Payment program. Questions about this collection can be directed to the Manager, Customer Service, Revenue Services, 5100 Yonge Street, Toronto, Ontario, M2N 5V7 or by phone at 416-338-4829.