Including a Carbon Offset Strategy

Achieving net-zero in London will be challenging, winning a race to that goal even more so. Including a carbon offset strategy may provide London with a big advantage and some important options for residents who may not own their home, may lack financial resources, or live in a part of the city where access to net-metered technology is not available.

One reason that offsets may play a much greater role in the net-zero goal is that it allows people in the low income scenarios to do much more, meet all targets and feel like they have done their "fair share". For example, in this scenario from the Climate Emergency Action Plan (CEAP) the individual can only achieve a 10% reduction with the potential of being stigmatized for not doing their "fair share".

Low income single person household in multi-family apartment building (74 m^2 or 800 ft^2), walking and cycling for transportation

Current GHG emissions by this household type:
2.3 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
2.1 tonnes per person (2030)

☑ 10% reduction in heat loss
☑ Reduction in food waste
☑ 72-hour emergency preparedness kit

10% reduction in GHG emissions by taking these actions

Here is an alternate savings and payment plan involving the purchase of carbon offsets that allows the same person to meet all targets including 10 years of net-zero up to the year 2059.

Annual Household GHG Production:	2.3	tonnes per year
CSA certified carbon offsets:	$20	per tonne (www.less.ca)
Cost of offsetting 100% of GHGs:	$46	per year

Target Year	2030	2035	2040	2050
Reduction Target	55%	65%	75%	100%
Offset cost/year	$25	$30	$35	$46

Offset Purchases

Total for 2030 -2034	$127			
Total for 2035-2039		$150		
Total for 2040-2049			$345	
Total for 2050-2059				$460

TOTAL OFFSET PURCHASES FOR 2030 - 2059:	$1,081
EQUALIZED MONTHLY PAYMENT* (starting 2023):	$2.43

100% of GHG reduction targets met including net-zero

*The individual could act now by starting to save up so that the future payments to be at net-zero after 2050 would be lower.

Here is what one might see on a website when purchasing the offsets online:

Offsets by the tonne

Total emissions: 2.3 tonnes of CO_2e

CSA Standard-Certified Canadian Offsets: $20.00 per tonne

Sourced from projects that have achieved certification under the CSA Standard, a globally recognized standard for voluntary GHG emission reductions projects.

$46.00 CAD*
*plus applicable taxes

Purchase

Offsets can be much a more cost-effective approach compared to some household investments. This is likely due to economies of scale and greater efficiencies in sequestering carbon. The family in the following scenario could expect to spend $50,000 to $150,000 for the following reductions depending on the age of their present vehicles. An even greater positive effect on the environment can be had for less than $10,000 with Carbon Offsets.

Current GHG emissions by this household type:
6.3 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
1.9 tonnes per person (2030)

- ☑ 25% reduction in heat loss
- ☑ Cold-climate heat pump with gas back-up
- ☑ 1st vehicle 20% reduction in distance travelled
- ☑ 1st vehicle switched to plug-in hybrid EV
- ☑ 2nd vehicle switched to battery EV
- ☑ Reduction in organic waste
- ☑ Vehicle-to-home back-up power
- ☑ 72-hour emergency preparedness kit
- ☑ Permeable paver driveway and raingardens installed
- ☑ Basement flooding measures incorporated
- ☑ Solar panels with battery back-up

70% reduction in GHG emissions by taking these actions

Annual Household GHG Production:	18.9	tonnes per year
CSA certified carbon offsets:	$20	per tonne (www.less.ca)
Cost of offsetting 100% of GHGs:	$378	per year

Target Year	2030	2035	2040	2050
Reduction Target	55%	65%	75%	100%
Offset cost/year	$208	$246	$284	$378

Offset Purchases

Total for 2030 -2034	$1,040			
Total for 2035-2039		$1,229		
Total for 2040-2049			$2,835	
Total for 2050-2059				$3,780

TOTAL OFFSET PURCHASES FOR 2030 - 2059: $8,883

EQUALIZED MONTHLY PAYMENT (starting 2023): $20.01

100% of GHG reduction targets met including net-zero

Below are similar results for the remaining household scenarios.

NOTES:

The amounts meet all targets including net-zero for the ten years from 2050 up to 2060.

The first number is the total cost of all offsets, while the second number is the amount that could be deposited monthly into a savings account starting 2023 to cover the entire cost*.

High income household of five in large new suburban house, three vehicles (two large vehicles, one compact)

Current GHG emissions by this household type:
4.7 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
1.7 tonnes per person (2030)

- ☑ Hybrid (heat pump and gas) home heating
- ☑ Net-metered solar power and battery back-up power
- ☑ 1st vehicle switched to plug-in hybrid EV
- ☑ 2nd vehicle switched to battery EV
- ☑ 3rd vehicle replaced with e-bike
- ☑ Reduction in organic waste
- ☑ 72-hour emergency preparedness kit
- ☑ Permeable paver driveway and raingardens installed
- ☑ Solar panels with battery back-up
- ☑ Shade trees planted

63% reduction in GHG emissions by taking these actions

Carbon Offsets: $11,045 or $24.88/mo

High income single-parent household of two in renovated older single-family house in established neighbourhood, one compact hybrid

Current GHG emissions by this household type:
5.3 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
2.1 tonnes per person (2030)

- ☑ 10% reduction in heat loss
- ☑ Hybrid (heat pump and gas) home heating
- ☑ Net-metered rooftop solar PV and battery back-up power
- ☑ Vehicle 15% reduction in distance travelled
- ☑ Vehicle switched to battery EV
- ☑ Reduction in organic waste
- ☑ 72-hour emergency preparedness kit
- ☑ Basement flooding measures incorporated
- ☑ Solar panels with battery back-up

57% reduction in GHG emissions by taking these actions

Carbon Offsets: $4982 or $11.22/mo

Average income household of four in new suburban townhouse, two vehicles (one compact SUV, one compact)

Current GHG emissions by this household type:
3.0 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
1.8 tonnes per person (2030)

- ☑ 1st vehicle switched to plug-in hybrid EV
- ☑ 2nd vehicle switched to battery EV
- ☑ Reduction in organic waste
- ☑ 72-hour emergency preparedness kit
- ☑ Permeable paver driveway and raingardens installed

39% reduction in GHG emissions by taking these actions

Carbon Offsets: $5640 or $12.70/mo

Low income household of two in older single-family house in established neighbourhood, one large vehicle

Current GHG emissions by this household type:
6.6 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
3.5 tonnes per person (2030)

- ☑ 35% reduction in heat loss
- ☑ Vehicle 20% reduction in distance travelled
- ☑ Vehicle downsized to used hybrid
- ☑ Reduction in organic waste
- ☑ 72-hour emergency preparedness kit
- ☑ Permeable paver driveway and raingardens installed
- ☑ Basement flooding measures incorporated

47% reduction in GHG emissions by taking these actions

Carbon Offsets: $6204 or $13.97/mo

Average income household of four in older single-family house in established neighbourhood, two vehicles (one large, one compact)

Current GHG emissions by this household type:
3.4 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
1.9 tonnes per person (2030)

- ☑ 20% reduction in heat loss
- ☑ 1st vehicle 10% reduction in distance travelled
- ☑ 1st vehicle downsized to used hybrid
- ☑ 2nd vehicle replaced with bike
- ☑ Reduction in organic waste
- ☑ 72-hour emergency preparedness kit
- ☑ Basement flooding measures incorporated
- ☑ Permeable paver driveway and raingardens installed

44% reduction in GHG emissions by taking these actions

Carbon Offsets: $6392 or $14.40/mo

Low income household of two in multi-family apartment building (92 m² or 1,000 ft²), one compact car

Current GHG emissions by this household type:
2.7 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
2.1 tonnes per person (2030)

- ☑ 10% reduction in heat loss
- ☑ Vehicle 10% reduction in distance travelled
- ☑ Vehicle replaced with used hybrid
- ☑ Reduction in food waste
- ☑ 72-hour emergency preparedness kit

23% reduction in GHG emissions by taking these actions

Carbon Offsets: $2538 or $5.72/mo

Average income household of two in new multi-family condominium building downtown (92 m² or 1,000 ft²), one SUV hybrid

Current GHG emissions by this household type:
3.1 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
2.1 tonnes per person (2030)

- ☑ Vehicle 20% reduction in distance travelled
- ☑ Vehicle switched to plug-in hybrid EV
- ☑ Reduction in organic waste
- ☑ 72-hour emergency preparedness kit

32% reduction in GHG emissions by taking these actions

Carbon Offsets: $2914 or $6.56/mo

Low income single-parent household of two in townhouse, transit user

Current GHG emissions by this household type:
2.7 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
2.0 tonnes per person (2030)

- ☑ 20% reduction in heat loss
- ☑ Reduction in organic waste
- ☑ 72-hour emergency preparedness kit

26% reduction in GHG emissions by taking these actions

Carbon Offsets: $2538 or $5.72/mo

Low income household of four in multi-family building (92 m² or 1,000 ft²), one compact car and transit use

Current GHG emissions by this household type:
1.7 tonnes per person (2022)

2030 GHG emitted by this household type if the following actions are taken
1.6 tonnes per person (2030)

- ☑ 5% reduction in heat loss
- ☑ Reduction in food waste
- ☑ 72-hour emergency preparedness kit

4% reduction in GHG emissions by taking these actions

Carbon Offsets: $1598 or $3.60/mo

*No attempt was made to adjust for interest earned on the regular payments, or the eventual drop in prices due to competition and technological advances. These would likely be balanced by inflation and increasing demand.

The exact same effect is achieved on the environment whether a person achieves net-zero through offsets or through technology/austerity. The effects on the individual are also no different. Any kind of heating system can produce the same temperature. Any kind of car will take a person from home to work. Any source of electricity will power appliances. Using a single strategy or a combination of the two simply becomes a personal choice. However, the option of offsets should allow people to avoid being stigmatized for not doing their "fair share" if they don't drive an electric vehicle, for instance.

Not all elements of the plan are available to everyone. The London Hydro electric grid is limited in its capacity to interconnect local generation such as solar panels. Also, what capacity does exist is not evenly distrusted with some areas having no ability for hook-ups

In conclusion, carbon offsets allow residents to participate in achieving climate targets even when they don't own their property, when they can't afford expensive upgrades, or when mitigation strategies are not possible for their home. They may also provide London a great advantage in the race to zero. For these reasons I request support for the following motion which councillor Hillier has agreed to second:

That staff BE DIRECTED to include carbon offsets as an option for households in the Climate Emergency Action Plan.

Sincerely,

Michael van Holst
Feb 27, 2021