

Schedule A to Staff Report 2020-0175

Modelled Mitigation Actions

Action Category	Action Subcategory	Description	Targets for modeling
LAND USE			
Spatial distribution	Densification	Increase allocation of new residential and commercial development to infill/intensification areas.	<ul style="list-style-type: none"> > Exceed Provincial targets for intensification and density by 15% (21% total intensification)* > Greenfield density increased to 75-80 people and jobs per hectare* <p><i>*Note: for modelling purposes, an ambitious level of density and intensity was used. Planning was consulted with during this process.</i></p>
	Dwelling size and mix	Decrease dwelling sizes, decrease share of single-family detached houses [optional]	<ul style="list-style-type: none"> > 40% smaller houses from 2016 average. > 10% of all new homes are single family detached by 2050.
BUILDINGS			
New Buildings	Efficiency of new residential buildings	Increased efficiency of new residential buildings to reduce thermal and electric energy demand	<ul style="list-style-type: none"> > By 2030 achieve the standards noted below for thermal energy demand and total energy demand: <ul style="list-style-type: none"> - Space heating demand maximum of 15 kWh/m2a or heating load maximum of 10W/m2 - Total primary energy demand maximum of 120 kWh/m2a > Increase the percentage of new residential buildings that meet standard to 100% > After 2030, 100% of new construction meets standard
	Net zero* residential buildings.	Net zero* residential buildings reduces thermal and electric energy demand	> Install solar pv, energy storage (50% thermal, 50% batteries), and heat pumps [to get to net zero energy* in total] so that all new dwellings are net zero by 2030
	Efficiency of new commercial buildings	Increased efficiency of new commercial buildings reduces thermal and electric energy demand	> New commercial buildings are 20% more efficient than those built in 2016 every 5 years starting in 2020.
	Net zero* commercial buildings	Net zero* commercial buildings reduces thermal and electric energy demand	> Install solar pv, energy storage (25% thermal, 75% batteries), and heat pumps [to get to net zero energy* in total] so that all new non-res (commerc, institut, muni) are net zero by 2030
	Efficiency of new industrial buildings	Increased efficiency of new industrial buildings reduces thermal and electric energy demand	> New industrial buildings are 15% more efficient than those built in 2016 every 5 years starting in 2020.

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	Net zero industrial buildings	Net zero industrial buildings reduces thermal and electric energy demand	> Install solar pv, energy storage, and heat pumps [to get to net zero energy*, excluding industrial motors end use] so that all new industrial are net zero by 2035
Existing buildings	Retrofit older homes (pre-1976)	Increased efficiency of residential buildings reduces thermal and electric energy demand	Achieve 50% thermal energy savings and 50% electrical savings in 100% of existing dwellings by 2030.
	Retrofit newer homes (post-1976)	Increased efficiency of residential buildings reduces thermal and electric energy demand	Achieve 50% thermal savings and 50% electrical savings in 100% of existing dwellings by 2030.
	Retrofits for small commercial and office buildings	Increased efficiency of existing commercial buildings reduces thermal and electric energy demand	Achieve 50% thermal savings and 50% electrical savings in 100% of existing commercial buildings by 2030.
	Retrofits for large commercial, office and industrial buildings	Increased efficiency of existing commercial and industrial buildings reduces thermal and electric energy demand	Achieve 50% thermal savings and 50% electrical savings in 100% of existing commercial buildings by 2030.
	Municipal buildings retrofits	Increased building efficiency reduces thermal and electric energy demand	Zero carbon buildings (new and existing) by 2040
Heat pumps	Residential	Reduced energy demand for building heating as heat pumps are installed in buildings	100% of space heating is electric (heat pumps) in residential buildings by 2030 (75% air-source and 25% geothermal heat pumps).
	Non-residential	Reduced energy demand for building heating as heat pumps are installed in buildings	100% heating, 100% cooling is electric (heat pumps) by 2030 (75% are air-source, 25% geothermal).
ENERGY GENERATION			
Solar energy	Residential PV	Residential PV installations for local energy generation	Scale up solar pv to reach 100% of the max solar potential by 2040 (292 MW) - kWh potential is then calculated assuming a certain % of shading, and accounting for local latitude and sunlight hrs.
	Commercial PV	Commerical PV installations for local energy generation	Scale up solar pv to reach 100% of the max solar potential by 2050 (102 MW approximation of max potential on all 2050 non-res buildings).

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	Utility-scale PV	Large-scale ground-mount PV installations for energy generation	100 MW by 2030 with 100% battery storage
Biogas	Biogas sourced from agricultural waste	Biogas from agricultural waste used for local energy generation	4x 250kW on-farm systems are installed by 2050
District Energy	District energy system	District energy systems built for local energy generation	Deploy district energy in all zones exceeding 150MJ/m2 + make 50% of new district energy from renewable sources
Energy storage	Residential energy storage	Increase energy storage capacity in residential buildings	100% of installed solar PV on residential [new & existing] includes storage 50% thermal storage + 50% batteries
	Commercial energy storage	Increase energy storage capacity in non-residential buildings	100% of installed solar PV on non-res [new & existing] includes storage 25% thermal storage + 75% batteries
	Utility-scale energy storage	Increase energy storage capacity in residential buildings	100% of installed ground mount solar PV includes storage + 100% batteries
TRANSPORTATION			
Transit	Increased transit and carpooling	Expand transit, per the Transportation Master Plan (p.78 from existing TMP- for transit expansions, also see p.131 of the Caledon Transit Feasibility Study- Bolton and Mayfield West lines additions, microtransit/rideshare)	Increased transit and carpooling modes based on increased infill/densification
Active transportation	Cycling and Walking	Increase/improve cycling and walking infrastructure, per the Transportation Master Plan	Increased active modes based on increased infill/densification
Vehicles	Electric vehicles	Electrify municipal fleets (corporate & service vehicles, emergency, police, and school bus)	100% zero emissions by 2030.
		Electrify personal vehicles	100% of new vehicle sales are zero emissions by 2035. 100% zero emissions vehicle ownership by 2050.
		Electrify commercial vehicles	100% of new vehicle sales are zero emission by 2035. 100% zero emissions vehicle ownership by 2050
WASTE			

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Waste diversion	Residential and ICI waste diversion	Improve waste diversion rates	80% of residential and ICI waste diverted by 2050. (from 75%)
Waste reduction	Per capita residential waste generation	Reduce waste generation	Reduce per capita residential waste generation by 50% by 2050. Also incorporates Landfill capture - increased proportion incrementally to 2050, based on federal regulations.
WATER			
Water	Water conservation	Water use/conservation (volume reduction)	By 2030, a third of all homes will use a combination of rainwater and greywater and reduce household water use by up to 50% for each home, resulting in a 12.5% decrease in water demand by 2025. [Peel target]
FOOD AND AGRICULTURE			
Food and Agriculture	Carbon Sink	Programs, policies and incentives to support local food production	Emissions/sequestration from agricultural land use and land use change will be estimated, based on improvements to density noted in the land use section will be estimated.
Natural Systems			
Forests and Wetlands	Carbon Sink	Maintain total forested area through forest protection and reforestation	As above, sequestration/emissions from remaining forests and land use change will be estimated.