

***Submission to
Treasury Board/Management Board of Cabinet***

***Green Ontario Fund – Programs and
Operational Requirements***

***Ministry of the Environment and Climate Change
May 30, 2017
(Draft May 18, 2017)***

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1.0 EXECUTIVE SUMMARY

On February 14, 2017, Treasury Board/Management Board of Cabinet (TB/MBC) approved the establishment and classification of the Ontario Climate Change Solutions Deployment Corporation (OCCSDC) as a board-governed agency under the Agencies and Appointments Directive, through Ontario Regulation (O. Reg.) 46/17 under the *Development Corporations Act*. OCCSDC, also referred to as the Climate Change Agency or the Green Ontario Fund (Green Ontario Fund), is mandated to stimulate the development of industry, trades and business undertakings in the province that further the deployment of technology that is commercially available and reduces greenhouse gas (GHG) emissions from buildings or from the production of goods.

The agency is expected to realize its mandate by significantly increasing the deployment of low-carbon technologies achieving GHG reductions; stimulating the low-carbon technology market in the Province; and, facilitating the transition to a low-carbon economy. Green Ontario Fund will provide a one-window service to Ontarians seeking support, information and access to all related programs in the province. It will also provide program delivery. Green Ontario Fund is to be funded by proceeds from Ontario's cap and trade program via the Greenhouse Gas Reduction Account (GGRA), pending evaluation by the Minister of the Environment and Climate Change (the Minister), and approval by TB/MBC.

MOECC is returning to TB/MBC to report back on:

- The results of the report prepared by Pricewaterhouse Cooper (PwC), a consultant retained by the Ministry to provide advice and recommendations on design of programs regarding emissions from buildings in Ontario;
- Program offerings;
- Operational funding requirements;
- The assessment of the agency regarding consolidation;
- Implementation timelines for the establishment of the Climate Change Agency (including hiring and program delivery), the associated funding alignment with the availability of proceeds from cap and trade auctions;
- The assessment of labour relations implications prior to the implementation of a staffing strategy;
- And to request release of funds from holdback.

In 2017-18, Green Ontario Fund will roll out rebate programs for residences and business (commercial and industrial buildings and processes), while focusing on improved access to information, encouraging fuel-switching and deep GHG reductions. The Ministry and Green Ontario Fund will return to TB/MBC to seek approval of potential programs for larger-scale project financing in the future. Anticipated timelines are included in Appendix **xxxxx**.

The Ministry is proposing the agency will roll-out seven transfer payment programs in 2017-18 , four for the residential sector totaling \$175 million and four for businesses totaling \$174 million, and is requesting the release from holdback of an additional \$50m to support the roll-out of these programs in the summer 2017. Remaining funds will be required for operational activities.

Type of Activity	Name of Initiative	Total Cost (2017-18, \$M)
Residential	Home Energy Concierge Service (i.e. Smart	20.0

Programs	thermostat installation and program information / sign-up)	
	Low Carbon Technology Incentives / Vouchers Program	124.0
	Market Transformation Initiatives	30.0
	Woodstoves replacement*	1
	Total Residential	175.0
Business Programs	Energy Concierge Service for Manufacturing SMEs	20.0
	Technology Incentives for Commercial SMEs	20.0
	Technology Incentives for Agricultural Facilities	11.0
	Target GHG+ Program for large industries	123.0
	Total Commercial	174.0
Operational Requirements	Board of Directors Remuneration and Expenses, Salaries and Wages, Marketing, Communications, Research, etc.	29.1
TOTAL		378.1

Green Ontario Fund programs will complement the cap and trade program by reducing greenhouse gas emissions while ensuring the actual reductions and associated economic benefits in terms of jobs and improved productivity occur in Ontario. In doing so, it will also assist individuals and businesses not directly regulated under the program, but nevertheless impacted by it, with a start in reducing their reliance on carbon intensive fuels/energy. This will help also reduce costs to vulnerable persons and communities, while supporting reductions from Ontario businesses as they transition to a lower-carbon economy.

2.0 REQUEST

2.1 Purpose of Request

The Ministry of the Environment and Climate Change (MOECC) requests that Treasury Board / Management Board of Cabinet (TB/MBC):

- RECEIVE the report back on the Agency's retained consultant report, proposed program offerings, operational funding requirements, assessment regarding consolidation, implementation timelines, and assessment of labour relations implications.
- APPROVE the Agency's proposed program offerings and operational funding requirements while reporting back in the Fall 2017 on future Market Transformation Initiatives.
- APPROVE the procurement of training services to train installers for the Home Energy Converge Service program for a maximum value of XX over a contract term of up to XX years.
- APPROVE a release from holdback of:
 - a. \$45,000,000 in the Green Ontario Fund Transfer Payment in the Cap and Trade Program (Vote/Item 1109-03) for initial Green Ontario Fund program offerings.
 - b. \$5,000,000, including \$XX in Salaries and Wages, in the Cap and Trade Program (Vote/Item 1109-03) for Green Ontario Fund operational requirements.

- APPROVE MOECC to proceed with an announcement of up to \$378,050,000 in 2017-18 for the Green Ontario Fund. [This includes \$1M for Woodstoves]
- Approve MOECC to enter into multi-year agreements with IESO that will commit future year funding.
- NOTE that MOECC will continue to work with the MOECC and the IESO to refine technology rebate estimates and requirements for Solar PV.

3.0 BACKGROUND

3.1 Short Description of Program

On February 17, 2017, MOECC filed Ontario Regulation 46/17 (Ontario Climate Change Solutions Deployment Corporation (the Regulation) creating the new provincial agency under the *Development Corporations Act*. The OCCSDC was subsequently trademarked as the Green Ontario Fund. Green Ontario Fund is mandated to stimulate the development of industry, trades and business undertakings in the province that further the deployment of technology that is commercially available and reduces greenhouse gas (GHG) emissions from buildings or from the production of goods.

Green Ontario Fund is funded by proceeds from Ontario's cap and trade program via the Greenhouse Gas Reduction Account (GGRA), created under the *Climate Change Mitigation and Low-carbon Economy Act, 2016*. That Act specifies that proceeds from Ontario's cap and trade program must be directed to types of initiatives that will reduce, or support the reduction of, greenhouse gases. Green Ontario Fund will provide a one-window service to Ontarians seeking support, information and access to all related programs in the province. It will also provide program delivery and is able to contract with other entities on program design and delivery.

Green Ontario Fund is required by O. Reg. 46/17 to maintain a website that has information about its programs and that has, to the extent possible, information about similar programs that are available to Ontarians and is intended to stimulate the use of low-carbon technology. The website is required to provide information about what the corporation is doing to monitor the outcomes of its programs and provide information about what the corporation has done to continually improve them. The Ministry has contracted the services of the Independent Electricity System Operator (IESO) who are assisting with the development of a website for Green Ontario Fund and also arranging for client management services (including a call centre) for the agency.

According to Pricewaterhouse Cooper (PwC), a consultant that MOECC retained to provide advice on program design, Ontario is one of the most complex jurisdictions in North America in terms of energy efficiency and energy acquisition programming. Dozens of programs are currently offered by a range of entities, including electricity utilities, natural gas utilities, governments and not-for-profit organizations. These programs are exclusively designed to meet energy resource acquisition objectives; with GHG reductions not being an intended benefit of the incentives. In consultations the Ministry conducted with targeted stakeholders in October 2016, a consistent theme expressed was that Ontarians were confused by the range of options currently offered, and are looking for a simple and intuitive turn-key approach to educate and assist them through the inquiry and decision-making process. In addition, sub-populations in the province utilize existing programs inconsistently, with more limited access and participant rates for Indigenous, low-income and rural Ontarians.

Green Ontario Fund is expected to help improve the existing infrastructure by:

- Introducing new programs that are focused on greenhouse gas reductions;
- Working with existing entities, such as IESO, to reduce complexity and confusion in the marketplace through the development of a more coherent program infrastructure and a one-window website interface that provides a one-stop repository and information for consumers;
- Ensuring that programs target key population groups.

3.2 Previous Cabinet Committee Approval

Date	Committee	Approval
April 2, 2015	Policy and Priorities (P&P)	Carbon Pricing (to proceed with design of cap and trade program)
April 8, 2015	Cabinet	Carbon Pricing (to proceed with design of cap and trade program)
July 22, 2015	P&P/Cabinet	Cap and Trade 1/3 (approval of cap and trade design options)
October 8, 2015	P&P	Cap and Trade 2/3 (approval of cap and trade program design options)
October 28, 2015	Cabinet	Climate Change Strategy (approval of Strategy, direction for commitments from ministries for Action Plan)
February 10, 2016	Cabinet	Cap and Trade 3/3 (to post draft cap and trade regulation, approval of program design)
February 16, 2016	TB/MBC	Bill 172 (approval of legislation - Climate Change Mitigation and Low-carbon Economy Act)
February 17, 2016	Cabinet	Bill 172 (approval of legislation - Climate Change Mitigation and Low-carbon Economy Act)
February 24, 2016	N/A	Introduction of Bill 172
April 21, 2016	Minister's Table	CCAP (approval for release of plan, communications strategy)
May 11, 2016	Cabinet	CCAP (approval for release of plan, direction for ministries' actions on components of action plan, communications strategy)
May 17, 2016	LRC	Cap and Trade Regulation (approval)
May 19, 2016	TB/MBC	CCAP (approval for release of plan, direction for ministries' actions on components of action plan, communications strategy)
October 20, 2016	Minister's Table	Climate Change Agency
October 27, 2016	Cabinet	Climate Change Agency (approval to create Agency through regulation)
December 14, 2016	TB/MBC	Climate Change Agency (approval to consult on proposed regulation and Agency creation)
February 14, 2017	TB/MBC	Climate Change Agency (approval of agency governance including board structure and remuneration)
February 15, 2017	Cabinet	Climate Change Agency (approval of regulation to establish Ontario Climate Change Solutions Deployment Corporation)

February 28, 2017	TB/MBC	Approval of proposed agency funding, offset from the Greenhouse Gas Reduction Account (GGRA)
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4.0 PROPOSED COURSE OF ACTION

4.1 Introduction

The object of Green Ontario Fund is to stimulate the development of industry, trades and business undertakings in Ontario that further the deployment in Ontario of commercially available technology that reduces GHG emissions from buildings or from the production of goods, by:

- Providing information;
- Engaging in marketing;
- Providing services and arranging for others to be provided with services;
- Providing incentives and engaging in financing activities, including providing incentives to individuals;
- Stimulating private sector financing; and
- Researching market barriers inhibiting the deployment of that technology and addressing those market barriers.

MOECC proposes that initially, in fiscal year 2017-18, Green Ontario Fund will provide direct rebate/incentive programs, and will undertake the necessary steps to permit it to roll-out financing tools including seeking any necessary government approvals for a proposed approach.

Although low-carbon technologies are often cost-effective in the long-run, some individuals and businesses find it difficult to pay the up-front costs. Funding from the Green Ontario Fund will subsidize those up-front costs. Entities in many jurisdictions, including Efficiency Vermont, have demonstrated that government efforts to reduce up-front cost and uncertainty through incentive programs can be very effective in driving deployment. Well-designed, properly targeted incentive programs can initiate a continuous cycle of improvement in the market for low-carbon technologies.¹ Incentives increase demand, and thus market penetration, leading to economies of scale for manufacturers. Economies of scale decrease the costs of production, and then the efficiency gains achieved through the incentive program can then be cemented by implementing standards that are more ambitious.

The Climate Change Action Plan committed the Green Ontario Fund to deliver programming that would direct a portion of funding from the GGRA to support deployment of low-carbon technologies/practices over a four-year period in the following areas:

	Program Focus	Target Technologies	Funding
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¹ la Rue du Can, et al., *Design of incentive programs for accelerating penetration of energy-efficient appliances*, Energy Policy, vol 72 (2014) http://ac.els-cdn.com/S0301421514002705/1-s2.0-S0301421514002705-main.pdf?_tid=98dda76c-8fc6-11e6-9537-00000aabb0f6c&acdnat=1476199561_b0648332bd5c9cc1c9e5906768136f28

			(4-year)
	RESIDENCES (with targeted initiatives for low-income households and Indigenous communities)		
Buildings	Retrofits for existing single family homes	Retrofits that reduce reliance on fossil fuels for space and water heating such as: • Geothermal heat pumps • Air source heat pumps • Solar thermal • Solar energy generation systems • Vehicle-to-grid energy systems • Energy storage systems	\$500M - \$600M
	Retrofits for existing private residential multi-tenant buildings	Retrofits such as: • Energy efficient technologies • Boiler replacements • Adaptive thermostats • Lighting • Geothermal heat pump systems • Air-source heat pumps • Vehicle-to-grid energy systems • Energy storage systems	\$300M - \$400M
	Rebates for new near net zero carbon emission homes	Builder to demonstrate beyond compliance GHG emissions reduction potential (i.e. performance that exceeds requirements of the Building Code), and property owners to provide post-occupancy energy consumption and GHG emissions data for specified time period	\$180M - \$220M
	BUSINESSES		
Production of Goods	Low-carbon technologies for industries and small and medium sized enterprises	Technologies and practices that will result in significant GHG reductions.	\$875M - \$1.1B

In the sections below, programming is discussed in the context of:

1. Driving low carbon deployment action in Residences (Residential buildings)
2. Driving low carbon deployment action in Businesses (Commercial/industrial buildings and production of goods)

4.1.1 Driving low-carbon deployment in Residences (Residential Buildings)

4.1.1.1 Context – Existing Residences

Positively altering the trajectory of GHG emissions in the buildings sector will be a crucial factor towards Ontario meeting its long-term GHG targets. This sector currently produces about 19 per cent of the province's total GHG emissions – Ontario's third-largest source of emissions. This number rises to about 24 per cent if electricity used by equipment and appliances in buildings is taken into account. Although building emissions per square meter have improved significantly over the past 25 years, total emissions continue to grow due to population, economic and building floor space growth. According to Ontario's 2014 Climate Change Update Report, efficiency gains will be offset by absolute increases and this sector's rising emissions trend will continue.

Ontario has implemented policies to lower emissions in this sector, including changes to the Building Code, conservation and energy efficiency (including demand side management) programs, energy efficiency regulation and standards, and changes to the Provincial Policy Statement. Ontario's Climate Change Update 2014 predicts that these initiatives will achieve 2.3 megatonnes (Mt) of emissions reductions by 2020. However, as demand for natural gas increases in both the residential (23 per cent increase) and commercial/institutional (30 per cent increase) building sectors mostly due to large increases in floor space, the magnitude of the change needed to alter the GHG emissions trajectory of Ontario's building sector is significant.

Single Family Homes

A major source of emissions from the residential sector is the use of carbon-intensive fuels including natural gas, oil, and propane for heating purposes. There are approximately 3.8 million single family homes in Ontario and approximately 65% of these households use natural gas as their main energy source for heating, 22% rely on electricity, and 13% rely on oil, diesel, propane and wood.

Barriers to undertaking energy efficiency retrofits in the housing sector include cost, lack of awareness of options, and technical hurdles. Investing in energy efficiency programs for the residential sector can assist in addressing these barriers and in helping Ontario residents manage energy costs and reduce emissions.

Existing energy efficiency programs targeted at homeowners in Ontario (see Appendix **xxxxx**) focus primarily on energy conservation and energy demand management strategies involving rebates for energy audits and energy efficiency retrofits through:

- Insulation, air-sealing, draft-proofing, window replacements/installation;
- Furnace/boiler upgrade, central air conditioner, showerhead aerator, lighting, power bars, household appliance; and
- Programmable and smart thermostats, timers.

These programs are many in number and are offered by various entities, including regulated entities (electricity utilities, natural gas utilities), provincial and municipal governments, and not-for-profit organizations. As an example, in 2014, Ontario ratepayers funded \$421 million worth of electricity conservation programs, and \$66 million for natural gas conservation programs. These existing programs are principally designed to meet energy resource acquisition objectives, with environmental (e.g. GHG emissions reduction) benefits not an explicit requirement or objective of program design.

Multi-Unit Residential Buildings

Barriers to energy efficiency and greenhouse gas emission reductions are particularly significant for owners of older multi-level apartment buildings. The majority of Ontario's apartment buildings were developed in the 1960s, 1970s and 1980s – a period when GHG emissions were not a concern and little attention was paid to energy-efficient design. Apartment buildings constructed in this era use up to 25% more energy per square metre than houses.

Energy supply in MURBs is a trend that mirrors that of single family homes. There are approximately 1.6 million MURBs in Ontario and that approximately 68% of these entities use natural gas as their main energy source for heating (the remainder rely on oil, wood, propane, or electricity (second major source – 23% of households)).

Indigenous Communities

Climate change has an impact on Indigenous communities and the environments in which they live. The Chiefs of Ontario have issued a statement calling upon the federal and provincial governments to immediately open up prompt discussion and dialogue so that goals and direction can be set together. They note that climate change has dramatically reduced the length of time winter roads are accessible causing shortages of food, fuel and medical supplies and increasing the need to fly in supplies. This results in higher living costs, potential decreases in quality of life and health, and the loss of much needed employment and economic development opportunities that stem from putting in the roads. There are few existing programs to support Indigenous communities to adapt to climate change and mitigate its current and future impacts. This gap has been identified by Indigenous communities who have articulated the need for both financial and capacity building support to develop expertise on climate change mitigation and adaptation activities.

4.1.1.2 Short Description of Program – Existing Residences

In 2016-17, the Ministry contracted the services of PwC to conduct a study and provide advice on designing and deploying low-carbon building measure subsidy programs to address Ontario's existing and new building stock. PwC notes avoiding duplication of programming will be a significant challenge for Green Ontario Fund. With the exception of electric battery storage, all of the building measures it reviewed are covered by existing electricity and/or natural gas ratepayer funded conservation and demand side management programs. Coverage of specific measures varies among programs, and current market rates present financial barriers to incentivizing some deep GHG reducing technologies (i.e. subsidies with sufficient shifts to market are needed to motivate owners to go beyond business as usual and consider long-term continuous results). Cabinet also directed MOECC, the Ministry of Energy, the Ministry of Economic Development and Growth, and the Ministry of Research, Innovation and Science to leverage existing infrastructure where possible and enhance as appropriate.

MOECC is proposing that Green Ontario Fund programs for fiscal 2017-18 that are targeted at residences will:

- Encourage a whole-building perspective/view (i.e. opportunities to reduce emissions from the building envelope, occupant behaviour, energy supply, and other measures),
- Leverage and build on existing program infrastructure,
- Bring together a more coordinated approach to establishing a 'GHGs-cutting' mind-set,

- Emphasize commercially available technologies that are not currently offered on a stand-alone basis by existing energy efficiency programs (i.e. gap-filling measures for the marketplace), and
- Emphasize fuel switching away from the use of fossil fuels, with a focus on transition away from oil, propane and diesel to efficient electricity (heat pumps) and modern wood heating technology.

With this approach to programming, Green Ontario Fund clients could equally consider approaches with low or high carbon reducing potential based on their individual readiness, and have access to knowledgeable persons who can advise on opportunities from both an energy supply/demand perspective and a GHG emissions perspective. This aligns with an important objective of Green Ontario Fund program delivery, namely the provision of a positive and seamless client experience. This includes providing consistency of service, promoting brand visibility, and keeping participation simple. Other such organizations that are trying to offer a more coordinated approach to program delivery on energy efficiency include Efficiency Nova Scotia, Efficiency Alberta, and Efficiency Vermont.

Green Ontario Fund residential programming would be administered by the Independent Electricity System Operator under a transfer payment agreement with the Green Ontario Fund. The programming would be comprised of two linked components:

- **Home Energy Concierge Service (i.e. Smart Thermostat Installation and program Information/Sign-Up):** This program would offer a home energy concierge service wherein owners of single family homes would be able to register for a free installation of a smart thermostat while at the same time being provided with the opportunity to sign-up for a home assessment and information on the range of incentive programs offered. Program communications and material would specify that time and quantities will be limited to accommodate potential oversubscription to the program. Guidelines in the transfer payment agreement would also ensure that installation targets will be spread in regions across the province. (Targets will be set evenly in regions across the province (with consideration of relaxed needs in underpopulated areas) and will be based on a first come first served basis.) Installation of the smart thermostats would be undertaken by a set of individuals employed by corporations that would be identified and trained by the IESO. Installers would provide homeowners with information on programs that are available in the marketplace and would follow-up with the IESO and Green Ontario Fund call centre to note specific areas where technology incentives may be offered and whether further follow-up with the homeowner is warranted.
- **Low Carbon Technology Incentives/Vouchers:** The in-home concierge service would be complemented with a technology incentive program that would be eligible to single family homes, multi-unit residential buildings, and small and medium sized commercial businesses. Owners of existing properties or single family homes that are considered new construction would be eligible for the incentives. Property owners would be able to contact Green Ontario Fund through its website or call centre to seek advice or information that will help them determine if they would like to work with a qualified contractor directly to install an eligible technology, or first undertake a full home assessment that will help identify property-specific opportunities for energy savings and emissions reduction and then follow-up on the technology of choice. The full home assessment would be channelled through a program supported through the Green Investment Fund and delivered by Enbridge and Union Gas entitled 'Home Energy Conservation Program'. All interested property owners (to the maximum of

available program funding) would be eligible to receive a voucher. The voucher (see Appendix xxxx for a preliminary example) would act as a time-limited, registered coupon that can be traced by IESO and offers a discount/rebate for the property owner's installation of an eligible technology without specific mention of the rebate amount as these will be technology specific. The types of eligible technologies are described further below. Program communications will indicate a rebate of 50% of total costs to a maximum threshold. (note approach to be confirmed with MO/DMO; A lower estimate on cost sharing may be considered for technology installations by multi-unit residential buildings and SME commercial businesses) The maximum threshold will be used to limit potential risk of contractor inflation of installation/equipment costs. Voucher redemption requests will require a copy of the receipt issued by the IESO approved contractor along with their signature on the issued voucher. The redemption request will also require proof of installation address/ownership. IESO will procure the services of a third party auditor/inspector to audit the performance of the contractors for integrity assurance.

Green Ontario Fund's investment in technology rebates would focus on building that ease of choice for the client, incentivizing change, and would place priority on rebates for technologies/designs that have potential for reducing GHGs, reducing energy bills and encouraging economies of scale. Such technologies/designs proposed for the near-term include (see also Appendix xxxx):

- Heating and cooling technologies such as:
 - Air source heat pumps (with and without hot water)
 - Ground source heat pumps (with and without hot water)
 - Modern wood heating technologies (e.g. pellet stoves and furnaces)
 - Solar water/air heating
 - Solar photovoltaic (PV) (with and without storage)
- Integrated solar (e.g. solar shingles)
- Enhanced insulation
- High performance windows
- Heat recovery

These are being further refined through work taking place under a contract with the IESO.

Green Ontario Fund would not be restricted in considering support of any solution that improves building thermal/carbon efficiency. The agency will have the flexibility to consider all GHG-reducing options, and to consider priorities as the market evolves and innovative technologies emerge. Furthermore, technologies/designs would not need to meet the same cost-effectiveness tests applicable to existing Conservation and Demand Management (CDM) and Demand Side Management (DSM) programs, given the different funding source (GGRA) and priorities as the emphasis would be placed on GHG reductions. A technology's effectiveness in practice (in performance for its intended purpose, for emissions reduction, and for human health) would be a key consideration for the agency. In addition to funding, in order to transform the market and scale deployment of these technologies, Green Ontario Fund will work with other ministries and stakeholders to ensure that the relevant industries are prepared to respond to any potential surge in demand, such as through improved or standardized training programs for installing certain technologies. To this end the Ministry is working with the Ministry of Advanced Education and Skills Development to outline a scope of work for which a consultant would be retained to determine how such skills could be

established in Ontario and what role the Green Ontario Fund may need to play, among other objectives.

Rebates through Green Ontario Fund's 2017-18 residential programs will aim to trigger decisions to adopt technologies that both reduce GHG emissions and energy bills, and are proposed to be set as a percent of the installed cost up to a particular maximum for reimbursement. The rebates would not discriminate based on the existing energy source for the home (would be a multi-fuel program), but would rather allow owners, with access to advice, to determine what best meets their needs, is cost-effective, and would achieve GHG reductions. In the current approach of program delivery (apart from a couple examples), programs are split based on the type of energy source the home uses and utilities offer only fuel-specific programs (i.e. while the end-use benefits may overlap, the programs are delivered to either achieve electricity savings or natural gas demand reduction objectives – but not both). Most recently, the Ministry of Energy has directed IESO to offer a Home Energy Conservation Program expected to roll out in 2017 that would build on the natural gas utilities' existing home energy retrofit programs by including assessment and information related to saving electricity. The Home Energy Conservation Program relies on GGRA funding to include homes province-wide and homes heated with fuels other than electricity or natural gas (e.g. propane and oil). The Ministry envisions the Green Ontario Fund will work in partnership with the existing program by channelling interested clients to the IESO/utilities' program and allowing the program's energy assessors to submit claims for rebates directly to the Green Ontario Fund program delivery agent (IESO) on behalf of the client.

Full costs for incentivized technologies under the Green Ontario Fund will be covered for single family home owners based in Indigenous communities, and those homeowners that are categorized as low-income households. The Ministry has allocated 20% of the proposed residential technology incentive budget for this purpose. MOECC is working with other ministries and IESO to advise Green Ontario Fund on how 'low-income' eligibility could be determined (an example is aligning the eligibility with that used in IESO's Home Assistance Program). Program coverage for the full costs of equipment and installation for low-income households is consistent with existing programs targeting this demographic (e.g. HydroOne's low-income ASHP pilot, Enbridge's Gas Home Winterproofing, Union Gas' Home Weatherization). The up-front cost of the measure is prohibitive to low-income families and offering technologies free of charge will guarantee uptake in vulnerable communities and assist with reduced utility bills.

Anticipated client experiences are included in Appendix **xxxx**.

Additional program types and offerings (e.g. financing tools such as loan loss reserves for local improvement charge (LIC) based financing) would be considered directly by the agency as a part of its business and strategic plan development. Green Ontario Fund will be encouraged to consider opportunities for challenging the marketplace for building design, community design and industry design that will make low carbon future for Ontario.

Targeted Outreach

Property owners across Ontario will be eligible for support through the programs for Single Family Homes and Multi-Unit Residential Buildings. However, a select few communities may

have specific needs that will/could require targeted outreach and/or support (e.g. to achieve particular objectives, such as encouraging fuel switching away from heating oil and propane, or to encourage local economies of scale and align supply and demand).

As a first example, the Ministry is proposing a community approach for a program to incentivize owners of single family homes, MURBs, and commercial buildings heated with oil and propane to switch to efficient modern wood and heating technologies, particularly in areas that do not have access to natural gas. This program would leverage the proposal for a residential **Wood Stove and Replacement Program** (approved by TB/MBC on February 28, 2017 as a part of the Greenhouse Gas Investment Plan for delivery via green Ontario Fund).

In Ontario there are over 50,000 residences and buildings that use wood as a primary source of space heating and an additional 230,000 that use wood and electricity and/or home heating oil, and 370,000 that rely on oil or propane. PwC estimates approximately 150,000 MURBs in Ontario are use heating oil, coal, propane, wood or a combination of these as their primary heating source, and that approximately 7,500 commercial buildings are heated with oil, propane or coal or a combination as a primary heating source.

The Low Carbon Technology Incentives/Vouchers program would encourage residential and commercial property owners in northern, rural and Indigenous communities to switch to lower carbon heat sources to avoid the GHG emissions reductions that result from using fossil fuels, including propane and home heating oil. Rebates would be offered to retrofit existing propane, oil and inefficient wood stoves, furnaces and boilers with efficient wood heating appliances (pellet, wood chips and wood) in the single-family, MURB and commercial sectors.

The Ministry of Natural Resources and Forestry confirms that Ontario's sustainably managed Crown forests are able to provide fibre for enough wood pellets. MNRF along with the Ministry of Indigenous Relations and Reconciliation have been working with the Ministry to help the Green Ontario Fund establish parameters for this part of the program.

A number of municipalities including Haliburton, Wawa, Elk Lake, Sioux Lookout and Marathon have expressed an interest in modern wood technologies and currently have no access to natural gas.

While this targeted outreach will form a part of the Low Carbon Technology Incentives/Vouchers program, the Ministry is considering the potential of additional third parties to support IESO (or utilities) in the delivery of the program in these remote and Northern areas of the province (e.g. local economic development corporations, regional municipal groups, other not-for-profit, non-governmental organizations) to leverage local reach and reduce costs for delivery.

4.1.1.3 Business Case for Request – Existing Residences

Green Ontario Fund residential programming is proposed to be administered by the IESO. The Ministry is proposing a partnership amongst the Green Ontario Fund and IESO, as IESO is a trusted resource in Ontario's energy community and understands how to integrate these program offerings into the current energy efficiency landscape so as not to duplicate existing programs, cause client confusion, or complicate the delivery approaches of existing service providers. An agreement with one program coordinator also provides flexibility to gauge consumer demand on the programs and to determine how best to allocate resources in

response (e.g. increase allocations across technologies or program components, or add new eligible technologies).

This approach also has the benefit of:

- Increasing and expediting participation with existing program awareness, contractor network and client pipeline;
- Expediting ready-for-market time; and
- Increasing cost-efficiencies, leveraging existing infrastructure/investments in program delivery, and in-house expertise with the capability to manage, direct and oversee an extended team of external resources.

Programs would be offered in alignment with the program delivery rules established through the CDM and DSM framework. These rules include processes for evaluation, measurement, verification, audit and reporting. Retrofits supported by Green Ontario Fund will not be required to meet cost effectiveness requirements as they offer long-term GHG benefits. This will ensure that Green Ontario Fund funds are spent with a focus on GHG reduction and technology longevity in the low carbon market.

IESO will be required to report quarterly and annually on a number of performance measures such as:

- Program participation (e.g. number and types of participants, number and types of technologies installed, spread across the province)
- Incremental cubic meter of gas savings (including the related greenhouse gas impact)
- Cumulative lifetime greenhouse gas savings

4.1.1.4 Short Description of Program – New Residences

Ontario's population is projected to experience moderate growth over the 2015 to 2041 period. Population is projected to grow 30.1 per cent, or almost 4.2 million, over the next 26 years, from an estimated 13.8 million on July 1, 2015 to more than 17.9 million on July 1, 2041. More specifically, PwC estimates that approximately 105,000 new single family homes, and 180,000 multi-unit residential buildings will be built between 2017 and 2020 in Ontario. Population growth will require new housing stock and it is imperative that the new housing stock incorporates low-carbon technologies.

To curb the increase in new emissions from the building sector, CCAP includes a proposal to make available a Near Net Zero Carbon Home Incentive that would provide "rebates to individuals who purchase or build their own near net zero carbon emission homes, with energy efficiency performance that sufficiently exceeds the requirements of the Building Code". There is no universal definition for a net-zero or near net zero carbon emissions building or other terms used to describe the types of new buildings that will be needed in the low-carbon economy, such as low-carbon building, zero carbon building, carbon-neutral building, high performance building, or net zero energy building), nonetheless, it is generally recognized that such buildings will exceed building code standards, and often incorporates advanced design and construction techniques. Measures could include for example:

- Advanced insulation materials (e.g. structured insulated panels, insulated concrete forms, advanced high R-value insulation packages)
- High-performance windows and frames

- Balanced mechanical ventilation systems, including well-designed exhaust-only fan systems, energy recovery ventilators, heat recovery ventilators
- Super high efficiency Heating, Ventilation and Air Conditioning (HVAC) systems including inverter driven or heat pump technology
- High efficiency water heating including on-demand, indirect, and solar hot water systems
- Air sealing and tight construction
- Passive design principles, such as building shape and site orientation
- Use of renewable and/or low-carbon energy

In 2017-18, newly constructed residential properties will be eligible for single measure incentives proposed as part of the Low-carbon Technology Incentives/Vouchers program eligible to single family homes and MURBs.

In subsequent years, the Green Ontario Fund will consider opportunities to support building design enhancements toward achieving net zero carbon emissions homes. This stream of future programming would incentivize new building developers and owners to improve the energy efficiency of the home, through investment in better thermal performance of the building envelope, air tightness and low impact mechanical and electrical systems. For example, Efficiency Vermont runs an annual competitive process to support deep retrofit projects (to achieve at least 50% energy savings) for buildings over 5,000 square feet. Selected recipients are paired with a dedicated energy consultant and receive financial assistance of up to \$125,000 per buildings.

In receiving their incentive at the point of purchase, it is envisioned that the property owner and occupants would be required to agree to disclosing energy consumption data to program delivery agents for a defined period of time post occupancy. Incentives for new residential builds will not discriminate on income and will offer a consistent rebate across all client types.

Green Ontario Fund will consider optimal delivery approaches for future programming on new residences following consultation with stakeholders on program design options. Delivery options may include, for example:

- Establishing a fully-integrated program with IESO, which is currently considering a re-design of the existing Save on Energy New Construction program;
- Call for proposals from partnerships (e.g. builders, municipalities, utilities for large MURB and subdivision projects) for specific project outcomes;
- Commissioning of a third party delivery entity to run a specific program on behalf of Green Ontario Fund.

Green Ontario Fund will conduct further consultation on the emissions targets, incentive values and delivery approaches that would be appropriate for this stream.

To this end, the Ministry is proposing that in 2017-18, the Green Ontario Fund will establish a **Net Zero Market Transformation Advisory Group or Committee** that will work with the agency to establish a visionary roadmap for overcoming barriers to and achieving a net zero building emissions future in Ontario. The advisory group / committee will be a multi-disciplinary group comprised of representatives with backgrounds such as energy efficiency, construction, architecture, policy. It will study the technical aspects of greenhouse gas emissions from buildings and develop comprehensive, actionable, long and short term recommendations. Committee expenses (e.g. report preparation, related research and

consultations) will be covered by the Green Ontario Fund, but expenses will not include committee member remuneration.

The establishment of a committee for the development of such a roadmap has been used in other jurisdictions such as the States of Massachusetts and California in the United States.

4.1.2.2. Driving low-carbon deployment action in Businesses (Commercial/industrial buildings and Industrial production of goods)

Ontario's commercial and industrial sectors accounted for 18% and 53% respectively of Ontario's energy related greenhouse gas emissions in 2014 (not including transportation fuels). These emissions result primarily from the use of natural gas and other carbon-intensive fuels such as oil and propane. As a result, without undertaking energy efficiency measures and/or fuel switching, the commercial and industrial sectors are expected to be significantly impacted by rising energy costs due to the implementation of the cap and trade program in Ontario.

The commercial and industrial sector currently faces a number of knowledge, technical and financial barriers to becoming more energy-efficient and switching to alternative, less carbon-intensive fuels to reduce greenhouse gas emissions where possible. Programs to increase energy efficiency in the commercial and industrial sectors could boost Ontario's productivity and competitiveness, while reducing greenhouse gas emissions.

The discussion below is categorized by the size of the business to distinguish the specific needs of both of these size categories (Small and Medium Sized versus Large).

4.1.2.1 Context – Small and Medium Sized Businesses

In 2016, the Ministry supported a report prepared by the Canadian Manufacturers and Exporters looking at greenhouse gas abatement potential in the Ontario small and medium sized industries. CME is Canada's largest trade and industry association, representing more than 10,000 companies nationwide. It is focused on manufacturing competitiveness issues, including U.S. business, international markets, people and skills, energy and the environment. The report completed an investigation into the operations of SMEs to establish a baseline technology profile as well as to identify the current adoption level of energy management best practices. The report noted that existing DSM and CDM programs offered through local distribution companies and utilities, while needed, will be inadequate on their own to address the needs of SMEs in Ontario for GHG abatement potential.

Unlike large, energy-intensive and trade-exposed industries like cement, steel and petroleum refining, SMEs will not receive a free distribution of allowances under cap and trade to help them transition to the regulatory environment of cap-and-trade. Unless they are able to increase their energy efficiency or switch to lower-carbon fuels, SMEs will be impacted by rising energy costs due to the pass-through of the carbon price from fuel and electricity distributors regulated under cap-and-trade. Many SMEs experience particular barriers to adopting energy efficiency measures including:

- Difficulty in obtaining financing for energy efficiency/low-carbon projects;
- Payback period is too high, or return on investment too low;
- Lack the necessary resources to access assistance, funding and incentives; and

- The company lacks the human resources required to focus on energy management.

Through the Green Investment Fund, Ontario allocated \$25 million to the Canadian Manufacturers and Exporters (CME) for energy-efficiency/emissions reduction investments in Ontario's small and medium sized manufacturing businesses. The \$25 million application-based grant program, SMART Green, is facilitating the adoption of energy efficiency technologies, emission reductions and best practices. The program targets SMEs and industry with annual greenhouse gas emissions under 25,000 tonnes per year and not the large, energy-intensive and trade-exposed industries. Program performance measures include the number of participating companies, annual reductions in GHG emissions, annual energy savings, cumulative lifetime GHG savings, productivity improvements and matching funding.

Within 6 months of launch, CME and the Ministry of Economic Development and Growth (MEDG) indicate the program has been receiving a steady stream of interest from Ontario companies. Twenty-eight applications (representing a quarter of the program's capacity) have been received to date and the program has received notice that an additional fifty applications are in development.

As a part of program planning, CME has a scheduled review of SMART Green that is presently underway, to assess the strengths and weaknesses of the program in its early phases. As a part of this review, MEDG is working with CME to cross-reference the barriers identified in the CME 2016 study to determine which barriers still require more attention and for gauging how the program may need to evolve or be adjusted to become an effective long-term strategy for supporting SMEs.

4.1.2.2 Short Description of Program – Small and Medium Sized Businesses

Concierge Service (Outreach and Technical Assistance) for Manufacturing SMEs

For the fiscal year 2017-18, MOECC is proposing the introduction of a new program targeted at Small and Medium sized manufacturers that would provide technical assistance and outreach to SMEs. The program would provide a financial incentive for industries to contract with a technical expert that would undertake a comprehensive energy audit and analysis covering the building structure, operations and manufacturing process. The technical advisor would:

- Conduct an on-site walkthrough at the facility-level that would include discussions with key personnel at the company
- Prepare a summary report of the opportunities to improve productivity, reduce waste, save energy all with a focus on reducing GHG – the report would be easy to understand and would be translatable to a business case for future investment in the facility
- Be available to answer follow-up questions related to the recommendations in the report for a specified period of time
- Inform the company of available funding (e.g. programs offered through existing conservation and demand side management programming, CME's SMARTGreen)

In addition to on-site engineering advice, the program would also offer outreach through workshops to collectively increase stakeholder awareness of sector and facility-specific opportunities for GHG and energy demand reductions (e.g. available by technology upgrades,

solution-oriented process improvements) and awareness of available funding programs. The program is intended to attract further action on facility-level improvements and drive investment in Ontario facilities.

In this program, a roster of available companies with technical advisors would be identified through an open, invitational process (general partnership/affiliation with the program, no exchange of funds with the technical advice companies). Manufacturers would be able to choose the company from whom assistance would be sought. In this way, the Green Ontario Fund could ensure a consistent offering on technical advice (i.e. what services the advisor would offer, what outputs they would generate, and what credentials they carry).

Low-carbon Technology Incentives for Agricultural Facilities and Food and Beverage Processing Businesses

One sector, holding unique requirements for low-carbon progression is the sector comprised by agricultural commodities under permanent cover (including greenhouses, livestock barns and grain dryers) as well as food and beverage processors from SME industries. As with other SMEs noted above, this sector is particularly faced with the challenges of limited: access to information, awareness of best practices and available technologies, access to capital, and access to decision-making tools to facilitate adoption of lower-carbon technologies/practices.

Given the specialty nature of this sector, MOECC has been working with the Ministry of Agriculture, Food and Rural Affairs to determine a scope of programming that Green Ontario Fund could facilitate with this sector to address their specific needs. A program for this sector has two primary objectives/components:

The program offering will have two components: Component 1 will aim to reduce emissions through known technologies and Component 2 will aim to explore, improve and progress new and lesser known technologies. Component 1 is designed to attract interest from the majority of targeted agriculture and food sector businesses whereas Component 2 is designed to attract interest from the innovators and early adopters to award continuous investment into innovative approaches.

Component 1 will provide cost share financial incentives to accelerate the adoption of known technologies. It will be application and merit based and eligibility will include a requirement for an assessment of the existing operation's energy use (via utility bills or sub-metering). The application will be scored for the evaluated risk and demonstrated target GHG reductions based on the identified actions.

Component 2 will incentivize innovators to investigate, pilot and verify riskier new and/or lesser known technologies with potential for a large impact on GHG reductions outside of agriculture (i.e. geothermal), and/or technologies not currently used in Ontario to assess their viability within Ontario agri-food facilities and demonstrate their potential to improve energy efficiency and reduce GHG emissions. Component 2 applications will be merit based and prioritized based on the greatest impact of a project's GHG reductions, the proposed viability of technology/practice and the stated in-kind contributions. Eligibility will also include a requirement for an assessment and a solid project plan, including details of reporting on emissions, the Knowledge Translation and Transfer (KTT) plans, and a demonstration of strong partnership commitments.

Green Ontario Fund will manage a transfer payment partnership amongst the third party delivery partner(s) for delivery of programming for this sector. The Covered Agriculture Stream of the program would likely use the Ontario Soil and Crop Association (OSCIA). The decision on the delivery agent for the Food and Beverage stream is not finalized and is expected to be informed by stakeholder consultations and discussions with potential agents. Strong candidates include the Ontario Centres of Excellence, Canadian Manufacturers and Exporters and the Ontario Soil and Crop Association (OSCIA). Other organizations also under consideration include the Agricultural Adaptation Council and Bloom Centre for Sustainability.

Delivery agent selection will be determined using OMAFRA's Transfer Payment Agent Delivery Selection Tool. Selection will be dependent on review and evaluation using several risk management tools including the following valuations: expertise in program delivery, knowledge of government fiscal and accounting directives, knowledge of Ontario's agriculture and food sectors, competency in meeting MOECC reporting.

OSCIA has demonstrated the capacity to develop and deliver a large scale government program similar to this one, and is currently delivering the pilot scale of this program as a best management practice under Growing Forward 2.

Food and Beverage Processing projects may benefit from reporting tools already designed by Provision Coalition and currently delivered through the Ontario Centres of Excellence (OCE).

The Ontario Centres of Excellence holds extensive experience delivering grant programming, communicating to stakeholders on how to write a successful funding proposal and in ensuring robust program planning from design to evaluation and close-out.

The program is envisioned to be multi-year in nature and the Green Ontario Fund in partnership with MOECC and OMAFRA will report back to TB/MBC on future year requirements.

In 2017-18, the program will provide matching funds (30-50%) of up to \$500,000 per project. This is envisioned to support the implementation of projects at up to 40 facilities. OMAFRA's experience is that cost sharing programs incentivize behaviour in organizations to overcome operational Return on Investment (ROI), thereby undertaking projects that benefit the province and the organization. This will be achieved by supporting established technologies (i.e. energy curtains in greenhouses; integrated metering and energy recovery in food processing), invest in understanding the opportunity of in-facility changes that would measurably reduce GHG footprints, and to pilot lesser-known technologies. This approach was decided upon based on OMAFRA's knowledge and long-ranging experience in delivering successful programs to support agriculture, food and rural stakeholders.

By linking cost-share funding to the disclosure of baseline and benchmark performance, the program's projects can be linked to a KTT that focuses upon early adopters for Component 1 and Component 2, where the aggregate business cases developed from these projects can contribute to the development of a cost and carbon-efficient roadmap for the majority of stakeholders.

Intended program outcomes include:

- GHG reductions in the sector
- Increased awareness and adoption low-carbon practices and technologies that extends beyond those facilities that receive direct funding

- The identification of new technologies that can be promoted for large-scale adoption across the agri-food sector to help improve competitiveness through energy efficiency
- Development of new skills and capacity in the agri sector
- Improved productivity and competitiveness

Low-carbon Technology Incentives for SME Commercial Businesses

PwC estimates there are approximately 152,000 commercial buildings in Ontario. Seventy percent of this building stock is older than 20 years and built under older building codes, suggesting significant opportunities to improve efficient use of energy. Most energy in commercial buildings is consumed by heating and cooling and lighting systems.

MOECC proposes that in 2017-18, small and medium sized commercial businesses could consider technological options for heating and cooling and other building measures to reduce greenhouse gas emissions and improve overall building performance, that are akin to those offered through the single home retrofits program of Section. 4.1.1.2. This includes technologies such as:

- Heating and cooling technologies such as:
 - Air source heat pumps (with and without hot water)
 - Ground source heat pumps (with and without hot water)
 - Modern wood heating technologies (e.g. pellet stoves and furnaces)
 - Solar water/air heating
 - Solar photovoltaic (PV) (with and without storage)
- Integrated solar (e.g. solar shingles)
- Enhanced insulation
- High performance windows
- Heat recovery

These are being further refined through work taking place under a contract with the IESO.

In addition, Green Ontario Fund would undertake consultation and research to determine what future programs may be required to assist the commercial sector (any size) with its transition to a low-carbon future and if this is an important area for the Green Ontario Fund to focus funding in

4.1.2.3 Business Case for Request – Small and Medium Sized Businesses

SMEs are typically characterized by highly constrained human resources, so even when reliable information is readily available, it is often difficult to marshal the expertise required to implement changes and build the capacity necessary to proactively limit GHG emissions on an on-going basis.

Green Ontario Fund would be responsible for managing the transfer payment agreement for third party delivery of the technical assistance program and workshops. The Ministry is currently assessing the capacity and experience of select third party(s) who have previously expressed interest with involvement in this programming to determine an appropriate approach to program delivery.

Collectively, the identified third parties, will be involved with the administration of the outreach and technical assistance of the Concierge Service for Manufacturing SMEs that would enhance sector awareness of facility-level opportunities and drive client participation in the existing SMART Green program.

The program would fund projects that target commercial and industrial entities with fewer than 500 employees and annual greenhouse gas emissions under 25,000 tonnes per year.

The transfer payment agreement between the Green Ontario Fund and the third party partnership will detail criteria for the program. These criteria could include the following:

- Less than 25,000 tonnes of annual greenhouse gas emissions
- Facility located in Ontario, has been in business for at least three years, and is financially stable
- Fewer than 500 employees
- Applicant will match a specified percentage of grant investment
- No overlap of funding from SMART Green
- Companies with multiple Ontario facilities can receive grants for a limited number of its facilities
- Not limited to CME members
- Performance measures, including:
 - Stakeholder participation – number of workshop attendees, number of applications received
 - Amount of anticipated greenhouse gas and energy savings potential identified
 - Innovation and productivity improvements associated with implemented GHG saving activities, and other economic benefits
 - Matching a specified percentage of grant investment (exact amount to be determined but expected to be at least 1:1)
- Communications and marketing requirements
- Roles and responsibilities of individual project partners such that it ensures no confusion on respective responsibilities for project milestones/ tasks
- Financial and project progress reporting requirements including also a detailed description of issues encountered and how they were addressed, recommendations on improvements for future programs, and program client satisfaction surveying

Green Ontario Fund would also be responsible for managing the transfer payment agreement amongst delivery agents of the low-carbon technology incentives for agricultural facilities and food and beverage processing businesses, in a fashion that is similar to the above noted delivery of the SME Concierge Service.

4.1.2.4 Context – Large Sized Businesses

Ontario's large industries, those industrial and institutional facilities with over 25,000 tonnes of annual greenhouse gas emissions, account for a significant percentage of Ontario's energy-related greenhouse gas emissions. Over the past decade, the Ministry has engaged this sector in discussions on potential impacts, implications and needs for facilities with the potential implementation of a carbon strategy. This has included discussions at a sector level, with individual companies, on technological limitations and needs of specific industrial processes, and the economic / organizational limitations to potential progress. Given the

business confidential nature of these discussions, the Ministry presents below an aggregated, high level summary of the feedback received.

Because large industries are energy-intensive and trade-exposed, they will be provided a significant portion of free allowances free of charge based on certain performance standards for at least the first compliance period until 2020. Over time, however, they will face a declining cap on greenhouse gas emissions within the cap and trade program and will be seeking solutions to improve their energy efficiency and reduce their overall greenhouse gas emissions.

Large industry also faces a number of knowledge, technical and financial barriers to becoming more energy-efficient and switching to alternative, less carbon-intensive fuels to reduce greenhouse gas emissions.

Many industrial emitters experience particular barriers to adopting low-carbon technologies including:

- Difficulty in obtaining financing for energy efficiency / low-carbon projects from out-of-province controlled head offices;
- Payback period is too high, or return on investment too low;
- Too much effort is required to access assistance, funding and incentives;
- Approval processes for newer, less commonly used technologies can be more costly and time consuming;
- Newer, more uncommon technologies are characterized as having high levels of technical and financial risk;
- The company lacks human resources to focus on energy management; and,
- Production is prioritized over energy management.

Programs to increase the uptake of low-carbon technologies in the industrial emissions sector also have the potential to indirectly improve economic outcomes including boosting Ontario's productivity and competitiveness.

Through the Green Investment Fund, Ontario allocated \$74 million to the Ontario Centres of Excellence for projects in the industrial emissions sector. OCE created a virtual centre of excellence for low-carbon technology development deployment. OCE's clean technology program operates via an on-going application intake, and brings together technology development companies (supply side) with emitters (demand side) to catalyze the rapid deployment and early adoption of new clean technologies. Through its duration, the program is expected to result in approximately \$150 million investments in new cleantech projects (industry matching is a program requirement). To date, OCE has received 29 applications to its Industrial Demonstration Stream. OCE will be supporting 9-11 projects with a total value of \$39 million and indicates a pipeline of 18-20 additional applications that have been assessed by its external review committee as holding potential for implementation success. The remaining \$35 million is allocated to other types of demonstration streams offered under the TargetGHG program.

4.1.2.5 Short Description of Program – Large Sized Businesses

Expanded TargetGHG

MOECC is proposing that Green Ontario Fund would leverage and continue with the success of the existing TargetGHG program by:

- 4.1.2.5.A. Increasing the amount of available funding through the Ontario Centres of Excellence for the existing Target GHG Demonstration Stream from \$74 million to a total of \$123 million with a Green Ontario Fund investment and continue to support partnership projects involving emitters and solution providers (clean technologies/companies). A new area of focus to be included in program guidelines is the utilization of carbon that has been captured or stored, and the eligibility of proposals from service and retail businesses (e.g. restaurants seeking to implement heat recovery technologies, grocery stores seeking to implement anaerobic digesters).
- 4.1.2.5.B. Creating a new program stream through the OCE with similar requirements as Item A above, that will stimulate the deployment of proven technologies/approaches in industrial applications to reduce greenhouse gas emissions and will provide a larger Green Ontario Fund project investment to support projects with a larger scale of GHG reductions and blended approach to achieving those reductions (i.e. demonstration of emerging technologies and deployment of proven technologies available in the marketplace). A first project to be supported under this new program stream is a proposal from ArcelorMittal Dofasco (AMD) offering 1.6 million tonnes of GHG emissions reductions (from implementation to 2050) from the steel making process through the implementation of 4 specific process improvements requiring large-scale technological changes to the facility (will introduce iron granulation, direct reduction iron supplement, coke moisture control and optimization of black furnace fuel rate).

The programs of Items 4.1.2.5.A through 4.1.2.5.B above would operate via an on-going application intake and OCE will undertake targeted marketing to drive the submission of applications in a timely manner. Applications would be assessed on their individual merits against program criteria by OCE's existing external advisory committee comprised of engineering consultants with no conflict of interest with the proposals they are assessing. While funding for this program is being identified for implementation in fiscal year 2017-18, the initiative may require roll-out over a multi-year (3- to 4-year) period to accommodate implementation schedules of projects at the facility-level. Funding would be matched at minimum, 1:1 by industry and potentially other partners (Will add information regarding stacking (i.e. max on government funding) following discussion with MEDG) and is expected to result in approximately \$240 million in low-carbon deployment funding.

While jurisdictions offer specific programs to their business stakeholders that are focused on energy efficiency improvements, Ontario is not aware of any jurisdiction offering a similar single program source for assistance to drive broad-based facility enhancements for emissions reduction. Ontario is unique in its approach of facilitating early adoption and the success of the first TargetGHG launch is a strong indication of local market demand for such programming.

4.1.2.6 Business Case for Request – Large Sized Businesses

Green Ontario Fund would be responsible for managing the transfer payment agreement with OCE for Items 4.1.2.5.A, and 4.1.5.B, as well as coordinating related communications OCE would administer the application-based funding programs and would fund projects by industrial entities with greater than 500 employees and annual greenhouse gas emissions above 25,000 tonnes per year.

The transfer payment agreement between the Green Ontario Fund and OCE will detail criteria for Items 4.1.2.5.A and 4.1.2.5.B. These criteria could include the following:

- Greater than 25,000 tonnes of annual greenhouse gas emissions
- Facility located in Ontario, has been in business for at least three years, and is financially stable
- Greater than 500 employees
- Able to demonstrate (and methodology used) that the investment will have a measurable reduction on greenhouse gas emissions by 2020 and will also indicate potential contributions to 2030 targets
- Applicant will match a specified percentage of grant investment
- Companies with multiple Ontario facilities can receive grants for a limited number of its facilities
- The intellectual property ownership requirements for the project will not hinder the use of the technology in other facilities (e.g. competitor companies), sectors and locations
- Performance measures, including:
 - Anticipated greenhouse gas and energy savings on a project-specific basis and overall program level
 - Innovation and productivity improvements associated with implemented GHG saving activities, and other economic benefits
 - Matching a specified percentage of grant investment (exact amount to be determined but expected to be at least 1:1)
- Communications and marketing requirements
- Financial and project progress reporting requirements including also a detailed description of issues encountered and how they were addressed, recommendations on improvements for future programs, and program client satisfaction surveying

This set of programming will address some key issues simultaneously:

- The need to support the adoption of innovative technologies and advanced approaches by emitters (to meet both 2020 and 2030 greenhouse gas reduction targets)
- The need for direct financial supports for clean technology developers that are providing the solutions

4.1.3 Market Transformation Initiatives

The Ministry is proposing that Green Ontario Fund program funding also be reserved for innovation proposals related to market transformation for which the Ministry will report back on in the Fall 2017. As the organization rolls out key programs and conducts critical organizational development work over the summer, it will also be tasked with moving forward important pieces of work to enable 2018 program launches and longer-term market transformation.

The Ministry proposes that in 2017-18, the Green Ontario Fund will have dedicated funding to encourage and support the submission of proposals in response to specific challenges/problem statements that would be identified by the agency. The challenges, issued through open and competitive call(s) for proposals, will have ambitious goals that harness science, technology, innovation and partnerships to solve important provincial or local problems and that have the potential to capture the public's imagination.

Examples of challenges the agency will or may consider include:

- Encouraging partnerships amongst non-governmental organizations, municipalities, builders and architects to design a 'Green Town' that models a low-carbon future.

A close example of the vision for this challenge is an ecovillage in Maine that has designed a small community on a near net-zero emissions scale; the United States Army's approach to establishing near net zero energy Army bases by 2020; and the University of California Davis West Village which is designed with homes for 3,000 students, faculty and staff, 662 apartments, 343 single-family homes and 42,500 square feet of commercial space, a recreation center and study facilities all on 200 acres (the total cost was approximately \$280 million).

- Encouraging partnerships with the development of a community scale geothermal heat pump system or other examples of *district wide efficient heating and cooling* approaches.

For example, the City of Guelph is undertaking its first city-wide district energy network that will see a new high-efficiency heating and cooling system service an entire district of connect buildings eliminating the need for individual furnaces, air conditioning units or water heaters. Instead an underground network of pipes installed alongside water, electricity and other utilities allows multiple buildings to share energy for heating, cooling and hot water. Benefits will include lower fuel and equipment costs, reduced space requirements, lower building and maintenance costs and reduced greenhouse gas emissions.

- Using a local improvement charge (LIC) program to finance improvements in residential and/or commercial building energy efficiency.

The main advantage of using an LIC program over alternative methods of financing energy efficiency improvements is that it associates the repayment of the cost of efficiency improvements with the building property rather than with the current building owner. This means that permanent improvements like high efficiency windows, wall upgrades, heating, ventilation and air conditions systems, control systems, and other features that have long payback periods are more attractive to home and building owners because both their costs and benefits are passed on to new owners.

There are a number of organizations that use a challenge or call for proposals approach in fields such as global health, energy and environment, space exploration and biomedical engineering. For example, in 2012, the United States federal government issued the '21st Century Grand Challenge' to support the furthering of ambitious goals on a national or global scale that capture the imagination and demand advances in innovation and breakthroughs in science and technology.

Eligibility requirements and evaluation criteria will be determined by the agency based on the anticipated requirements of the challenge and as a part of developing its process for accepting and assessing proposals received.

Proposals will be expected to:

- Identify the challenge that the partnership/organization intends to pursue

- Describe how the partnership/organization intends to use funds to response to the selected challenge – including items such as key tasks, timelines, potential barriers and risks, any required approvals (e.g. permitting, environmental approvals, other regulatory approvals)
- Outline team members, their roles, their responsibilities, their expertise and how these meet the demands of the outlined project
- Provide references that will assist the review committee in determining the previous success rate of team members
- Include annual and itemized budgets for the duration of the project with disclosure of other sources of funding
- Be of high technical/societal merit, presenting unique and innovative methods, approaches, concepts or advanced technologies, capabilities and experience of the proposed team/organization
- Have reasonable and realistic proposed costs
- Cannot be eligible for another recent, current or pending Green Ontario Fund program

4.1.4 Financing

As up-front cost represents the most important obstacle energy efficient and low-carbon retrofits, renovations and constructions, incentives have been put in place by governments worldwide to encourage property owners to renovate their properties in a way that increases their energy and GHG performance. Traditionally, many of these programs offer direct incentives, such as grants and rebates, but more recently, there is increasing focus on financing tools. Various institutions can be involved in the financing process, such as governments, banks, firms or energy services companies.

For example, the Connecticut Green Bank started out investing 80% of its resources on grants, rebates and subsidies to build a clean energy market in the state and later transformed into a new entity that invests over 80% of its resources in loans, leases and credit enhancements to attract private capital investment to grow the clean energy market. Other example jurisdictions that have similarly implemented financing programs/plans include the United States, France, Belgium, Germany, the United Kingdom, Australia, Estonia and others (see summary in Appendix xxxxx). Examples of financing tools are provided in Appendix xxxxx.

A clear gap exists in the current incentive infrastructure in Ontario for low-cost financing options to support low-carbon retrofits and construction. According to the Ontario Gas Demand Side Management 2016-2020 Plan review (July 27, 2015), prepared for Ontario Energy Board staff:

- “Regarding customer financing, neither Enbridge nor Union is proposing offering any low-cost financing options in the current plan, despite the Board’s conclusion that on-bill financing is a key priority and that financing presents cost mitigation opportunities. As a result, we recommend that third party establish and lead a finance working group. This working group would research how well existing financing offerings meet the needs of customers in each program including low-income, multi-family and Aboriginal groups, identify opportunities to design new offers and investigate funding sources.”

For 2017-18 the Ministry proposes the agency will report back to TB/MBC with a business case for financing programs. The agency will procure technical advice on financing programs

delivered by green banks and other procurements relevant to program design and agency operations to help inform its business case.

4.1.5 ECONOMIC IMPACT ANALYSIS

All agency programs will be designed with value for money in mind. In this context, Green Ontario Fund programs will incentivize and facilitate the use of low-carbon technologies when the circumstances both offer value to Ontarians and further the implementation of the government's priorities on climate change mitigation and adaptation. Conceptually, a low-carbon deployment entity should stretch public dollars further than traditional grant and rebate programs by targeting projects that, once specific market gaps are addressed, will be attractive for private investment.

Target clients who will benefit from the services offered by Green Ontario Fund include households, with targeted programs for households with income-based needs, Indigenous communities, building owners, businesses and industries (small and medium enterprises and large final emitters). As market gaps are filled, (as use of a technology becomes "business-as-usual"), the Agency will identify and address other gaps, until market transformation has taken place (i.e., choosing low-carbon technologies becomes the norm).

The programs of the Agency are expected to reduce GHG emissions and result in a number of financial co-benefits for Ontarians, including:

- Stimulating innovation: Market demand drives innovation. Establishing an entity that will have a long-term funding stream from the Province's cap and trade program for the purpose of increasing deployment of low-carbon technologies, will send a strong market signal that demand for such technologies in Ontario will be sustained over the long-term.
- Creating jobs: Successful deployment of technologies requires auditors, suppliers, and well-trained installers. Between 2012 and 2015, Connecticut's Green Bank investments have led to the creation of 3,093 direct jobs and over 5,200 indirect and induced jobs.²
- Competitive advantage: By stimulating demand for deployment of low-carbon technologies and low-carbon new buildings, the Agency will encourage the growth of capacity (expertise, workforce, supply chain). This will give Ontario a competitive advantage with respect to products and services needed for the global transition to a low-carbon economy.

Consistent with the objects of the *Development Corporations Act* to encourage and assist in the development and diversification of industry in Ontario, the Agency's actions are expected to stimulate development and diversification in the following industries:

- Low-carbon technologies research, manufacturing and distribution
- Builders
- Architects
- Engineers
- Installers
- Trades
- Energy and building managers

² Connecticut Green Bank, [FY15 Comprehensive Annual Financial Report](http://greenbanknetwork.org/connecticut-green-bank/), p.113; See also: <http://greenbanknetwork.org/connecticut-green-bank/>.

- Banking institutions

The Agency will also help facilitate Ontario's transition to a low-carbon economy by leading to GHG reductions. Expected GHG reductions are as follows (these estimates are consistent with the Agency's GGRA submission):

Program	Anticipated/Targeted Participants	Approx. GHG reduction (tonnes of CO ₂ e)	Funds Leveraged
Home Energy Concierge Service	50,000 Homeowners	11,000	N/A
Low-carbon Building Technology Vouchers (Single Family Homes)	11,000 single family homes 150 multi-unit residential buildings	29,000	N/A
Market Transformation Initiatives (Call(s) for Proposals)	tbd	tbd	tbd
SME Concierge Service	1500 businesses	Tbd	N/A
Agricultural facilities and food and processes businesses	40 businesses	tbd	at least \$22 million
Low-carbon Technology Incentives (SMEs)	700 businesses	175,000	\$40 million
Expanded TargetGHG	15 businesses	540,000	\$240 million

4.2 Timelines for Key Activities of Board of Directors

Upon establishment, the Board of Directors will have many time-sensitive and client-focused activities to undertake. In its first year of operations, the Ministry estimates that operational priorities for the agency will focus on the following:

Phase 1: Within 3 months

- Undertake Board orientation
- Develop and adhere to sound governance policies – e.g.:
 - Code of conduct for board members

- Key by-laws (including for conflict of interest rules)
- Policies for procurement
- Establish a sound, skills-based human resources plan sufficient to fulfill mandate and build staff capacity gradually
- Open bank account and arrange for financial support/bookkeeping
- Secure corporate/liability/directors insurance
- Retain legal counsel
- Retain HR services to develop executive compensation framework and support other HR activities
- Finalize Memorandum of Understanding with the Ministry
- Appoint a Chief Executive Officer
- Develop an initial stakeholder/public engagement plan and begin to implement it
- Establish agreements for programs to launch by September 2017

Phase 2: Within 6 months

- Seek Ministry of Finance approvals for by-laws and procurement policies
- Adopt a prudent 2017 Business Plan to ensure effective implementation of objects
- Continue to develop governance policies
- Begin implementation of HR plan - retain and train key employees
- Begin search for permanent office (e.g. contract services of Infrastructure Ontario)
- Begin development of draft financial services agreement with the Ontario Financing Authority
- Agency posting of the MOU and Mandate letter to its website
- Finalize proposed approach on financing programs following consultation with OFA and seek Ministry of Finance and Treasury Board Secretariat approval
- Make updates to agency website to enhance the interactivity with clients

Phase 3: Within 12 months

- Develop additional governance policies (e.g. policies for travel, meal and hospitality expenses, other by-laws/policies)
 - Complete 2016 Annual report by June 1, 2018
 - Complete 2018 Business Plan by
 - Potentially move into permanent office space
 - Introduce new programs
 - Procure and set-up IT systems
 - Finalize Executive Compensation Framework and post Ministry-approved framework on website
 - Determine potential to extend agreement with the Independent Electricity System Operator for website maintenance and call centre services
-

It should be noted that the timelines are estimated and remain subject to change based on direction by the Board. The MOECC focused more on the logic of sequencing and dependencies to advise the Board of Directors on how it might prioritize its tasks and planning activities required to operationalize business functions, rather than attempting to set firm dates to schedule by. These timelines are aspirational in that they accelerate development through compressed phases that keep activities within a one-year timeframe, yet still attempts to anticipate the full organizational scope of work require to bring a nascent not-for-profit corporation to a point of operational readiness.

4.3 Impact on Fiscal Plan on a Multi-Year Basis

All requests for GGRA funding, including those of Green Ontario Fund, must be evaluated by the Minister of the Environment and Climate Change as per the *Climate Change Mitigation and Low-carbon Economy Act*. In line with all other funding requests considered by the Minister for funding through the GGRA, the Green Ontario Fund will be expected to complete its request through the GGRA intake form and self-assessment and submit its requirements to the MOECC. The Minister's recommendations on funding requests will subsequently be considered by Treasury Board / Management Board of Cabinet.

The Minister's evaluation of initiatives considers the following:

- The potential greenhouse gas reductions
- The relationship of the initiative to the achievement of Ontario's greenhouse gas emission reduction targets
- The relationship of the initiative to other potential, planned and funded initiatives to reduce greenhouse gases
- The relationship of the initiative to the Climate Change Action Plan
- Whether the initiative is also likely to assist low-income households and vulnerable communities with their transition to a low-carbon economy
- Other matters that the Minister of the Environment and Climate Change considers appropriate

Given the cycle of forecasting needs, requesting funds, seeking approval for release of funds, and reviewing performance, the Ministry and Green Ontario Fund are establishing an inherent process of managing the potential risk of low cap and trade proceeds in future auctions. Green Ontario Fund will continuously determine the potential need to scale back/triage programs if funding is not at anticipated levels.

As part of the Ministry's 2017-18 Program Review, Renewal and Transformation submission, the Ministry requested funding of \$2.3 billion over the next four years (\$351.1M in 2017-18, \$650.5M in 2018-19, \$650.0M in 2019-20, and \$650.0M in 2020-21), offset from the GGRA, pending evaluation by the Minister of the Environment and Climate Change and approval by TB/MBC. The \$2.3 billion envelope will enable the start-up and early operation of Green Ontario Fund.

MOECC will manage any initial costs for Green Ontario Fund from within the Ministry's existing allocation until proceeds from the cap and trade auctions are available. As per the *Climate Change Mitigation and Low-carbon Economy Act, 2016*, MOECC can be reimbursed for expenses incurred for initiatives that are reasonably likely to reduce or support the reduction of greenhouse gases. The reimbursement must be done before the end of the fiscal year in which the expenditures are incurred, subject to the availability of proceeds.

Estimated distribution of program costs for fiscal year 2017-18 (first year of agency operations), across program categories:

Type of Program	Name of Initiative	Total Cost (2017-18, \$M)	May 9 TB/MBC	May 30 TB/MB C	Q1 (Jun 17)	Q2 (Sept 17)	Q3 (Nov 17)	Q4 (Feb 18)
Transfer Payments								

Residential Programs	Home Energy Concierge Service	20.0		5	5	10		
	Low Carbon Technology Incentives / Vouchers Program	124.0		30	50	44		
	Market Transformation Initiatives	30.0					10	20
	Woodstoves replacement*	1					1	
	Total Residential	175.0						
Business Programs	Energy Concierge Service for Manufacturing SMEs	20.0			5		15	
	Technology Incentives for Commercial SMEs	20.0			5		15	
	Technology Incentives for Agricultural Facilities	11.0			2		9	
	Target GHG+ Program for large industries	123.0	27	10	28	41	17	
	Total Commercial	174.0						
Other Direct Operating Expenses								
Operational Requirements	Board of Directors Remuneration and Expenses, Salaries and Wages, Marketing, Communications, Research, etc.	29.1	3	5	5	5	9	2.1
	TOTAL	378.1	30	50	100	100	76	22.1
*Budget for Woodstoves replacement program outside of Green Ontario Fund envelope – program will leverage co-delivery with Green Ontario Fund programs								
** Based on analysis conducted by PwC which reviewed the program management costs								

experienced by a number of delivery agents across North America, the Ministry is anticipating that program costs will inherently require up to 30% (tbc) for program implementation, review and management.

Estimated operational/program requirements across fiscal years:

Activity***	2017-2018	2018-2019	Notes
Board of Directors – Remuneration	\$139,500	\$64,500	Year 1 assumes 1 Chair remunerated at \$500 (180 days), 1 Vice-Chair at \$250 (30 days) and 7 Board members at \$200 (30 days each); Chair days reduced in year 2 and onwards
Board of Directors – expenses	\$50,000	\$25,000	E.g. travel expenses for stakeholder meetings; meeting space rental for year 1
Agency staffing (executive & non-executive)	\$5,500,000	\$11,000,000	Assumes 0.5 year in Year 1; full staff complement by Year 2; and includes estimates for benefits
Operational establishment (e.g. policies)	\$1,750,000	\$500,000	Assumes expenses in year related to management consultant, legal services, and HR consultant who will assist the agency with the establishment of key operational policies (e.g. by-laws, HR policies, conflict of interest rules, etc.)
Insurance	\$10,000	\$10,000	
Office space	\$500,000	\$1,000,000	Assumes an average of \$80 per square foot of space in Toronto; 225 square footage of office space per staff person employed
Travel expenses (includes participation in trade shows)	\$45,000	\$90,000	
Information technology	\$500,000	\$1,000,000	
Administrative supplies (e.g. office furniture)	\$15,000	\$30,000	
Website	\$2,000,000	\$2,000,000	
Call center	\$4,000,000	\$4,000,000	
Marketing/communications (does not include distribution of funds to third parties for program communications)	\$5,000,000	\$10,000,000	Includes also costs for behavioural research studies; market testing
Program design	\$2,000,000	\$2,000,000	
Program delivery/funding	\$356,490,500	\$616,280,500	Includes funding for distribution to clients, third party costs for program delivery (e.g. for staffing, marketing, technical requirements)
Program assessment and review		\$2,000,000	IESO has procured the services of a consultant at \$70m over 5 years to conduct program audits/inspections
Overall total	\$378m	\$650m	Expenses other than program delivery/funding estimated at approximately 4.5% (Green Ontario

			Fund will aim not to exceed 10%)
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Based on a preliminary assessment undertaken by the Ministry, it appears that the province controls the Agency and it will be consolidated into the books of the province. An updated control assessment will be needed after the Agency is created to confirm that the Agency is a consolidated agency.

4.3 Human Resource Implications

No implications to the Ministry's human resources are anticipated and risks for potential triggers of successor rights in provisions under the *Labour Relations Act* were determined to be low (see Appendix **xxxxx**).

Green Ontario Fund Staff Resources

MOECC considered three options outlining the degree of responsibility on the agency for direct design and delivery of programming, including agency models with:

- Full responsibility such as that assumed by the Electricity Safety Authority and the Ontario Centres of Excellence;
- Shared responsibility such as that used by the Independent Electricity System Operator; and
- Limited responsibility.

And is recommending the Green Ontario Fund would adopt a configuration that allows flexibility between the latter 2 options – shared responsibility and limited responsibility. While the Green Ontario Fund will be seeking to support third party delivery of programming, it is clear that the agency will need to have some involvement in the requirements for program design and will need to ensure its in-house expertise can set the appropriate boundaries/parameters on program design and assess the effectiveness of program supported/delivered. Given this limited but expert focused approach to direct program design and delivery, MOECC is proposing a relatively moderate sized staff complement and structure. The Ministry anticipates critical subject matter areas will include human resources, finance, legal, marketing/communications, program design/delivery/review, information technology, and administration. MOECC will report back to TB/MBC on a staff structure and size to be determined by the Board of Directors.

Field	Description	Number of Executives	Number of Non-executives
Chief Executive Officer	▪ Leads overall organization and will be responsible for all day-to-day management decisions that implements Green Ontario Fund's long- and short-term plan ▪ Acts as a direct liaison between the Board and management of the agency and communicates to the Board on behalf of the management	1	--
Human Resources	▪ Responsible for attracting, retaining and inspiring talent with the right competency levels, skills and qualifications. Will also	1	4

	have a particular focus on compensation and benefits, pension, learning, ethics and conduct, health and safety, employee relations, recruitment performance, and organizational change ▪ Non-executive staff will focus on pay and benefits coordination, learning and development, recruitment		
Marketing/ Communications	▪ Responsible for the agency's strategic planning, reporting, corporate communications and supporting internal governance processes ▪ Will conduct market analyses on stakeholder views/behaviour ▪ Non-executive staff will focus on issues and media relations, board relations, strategic communications, marketing approaches	1	6
Legal	▪ Responsible for the agency's legal affairs and overseeing the delivery of legal services in a range of areas including corporate governance, litigation management, procurement, employment and corporate/commercial law	1	4
Finance	▪ Responsible for all financial and accounting functions, including financial reporting, financial planning, risk management, insurance, business continuity, procurement, facilities, pension plan, and audit and review activities ▪ Non-executive positions include financial analysts, controller/accountant, business services support, procurement/contracts coordinator	1	6
Programs	▪ Responsible for the design, development, execution and performance review of agency programming ▪ Will oversee stakeholder relations, conduct program analysis and collaborate with ministries and other partners on program delivery ▪ Includes conducting reviews on program designs and proposing changes based on experience to date, evaluating cost-effectiveness and effectiveness of program outcomes/administration	1	7
Information Technology	▪ Responsible for the agency's information technology needs, which consists of business analysis, system architecture, development, testing, computing and network services and strategic initiatives	1	2

	Non-executive positions include IT program services, IT applications, Architecture services		
Admin support		--	7
Summary		7	36

Additional positions will be required to support the integrity of program delivery and are expected to be outsourced functions, not agency staffed positions. These include:

- technical advisors who would, for example, assist homeowners with the assessment of GHG reducing opportunities in their homes
- technical advisors who would assist commercial businesses and industries
- inspectors/auditors who would spot-check the delivery line system for compliance

This approach differs from the approach of the regulatory body, the Electrical Safety Authority whose core function is to conduct safety inspections on homes and buildings, but aligns with the energy efficiency program delivery approach of the Independent Electricity System Operator. Technical advisors will be employed by a third party organization, and will be required to at minimum have demonstrated knowledge and experience in areas such as:

- Construction practices for residential housing
- Energy improvement projects
- Building material
- Heating, ventilation and air conditioning systems
- Building science (the principles of the building as a system)
- Basic arithmetic and geometry, computer skills, and
- Good client relations

Opportunity exists to leverage the expertise and infrastructure of existing trade ally networks (e.g. within NRCan, IESO), with additional training for members of existing networks.

An important objective of Green Ontario Fund will be to foster the training of technical advisors, those individuals that are in direct contact with Green Ontario Fund clients, to ensure their understanding of the role of energy demand/supply with GHG reductions and the overall perspective of design for the environment. This is particularly important to provide clients with confidence that quality services will be provided and will deliver promised savings. The Ministry has assumed that costs for training, and the provision of such technical services are embedded with program design and delivery.

The following chart compares proposed Green Ontario Fund staffing levels to organizations with similar mandates and shows that each Green Ontario Fund staff person would be responsible for managing \$xxx in investments – this represents a comparable level of funds managed per person:

Organization	Total Financial Assets	Number of Staff	Ratio of Financial Assets per Staff
Green Ontario Fund	\$350-\$650 million	43 - 50 (proposed; Green Ontario Fund to confirm total needs as part of business	\$7.44 million to \$13.9 million

		planning – avg 47 assumed for ratio)	
Ontario Financing Authority	\$19 million (but tens of billion in managed debt/funds)	165	N/A
IESO (Conservation and corporation Relations Team)	\$460 million (conservation programming per year)	72	\$7.2 million
Business Development Canada	\$20 billion	2,000	\$10.1 million
Fed Dev Ontario	\$162 million	150	\$1.2 million
Connecticut Green Bank	\$177 million	33	\$5.4 million

Green Ontario Fund Executive Salaries

The Green Ontario Fund Board of Directors will be responsible to set executive compensation which aligns with and meets requirements under Ontario Regulation 304/16 (Executive Compensation Framework). Treasury Board Secretariat is committed to work with the Ministry to ensure that Green Ontario Fund is able to develop an executive compensation program that complies with regulatory requirements.

With an estimated/anticipated fewer than 10 executive roles (agency to confirm final requested staffing structure), Green Ontario Fund will have a very lean executive structure. While the executive structure may change due to business need, Green Ontario Fund has been envisioned to align with the best organizational design principles so as not to require excessive senior level staff.

Green Ontario Fund's compensation philosophy will be designed to ensure that it is able to attract, retain and motivate key talent in a manner that is competitive, affordable and aligned with its business strategy and the environment in which it operates.

It is anticipated that the first staffing appointment made by the Board of Directors will be the CEO, as this position will be necessary to provide leadership when developing Green Ontario Fund's organizational structure. Given the urgency to appoint this position once the Green Ontario Fund is established, the Ministry is working with the Centre for Public Labour Relations and Compensation to determine an appropriate interim compensation for the CEO position which aligns with the standards set out in the Executive Compensation Framework. In accordance with those standards, a maximum interim salary of \$360,000 (tbc) was determined based on an analysis of CEO compensation at comparable public sector and broader public sector organizations. Comparators included agencies in Ontario such as the Ontario Trillium Foundation, IESO, and Energy Efficiency Alberta. The compensation package will provide for the same benefit program offered to other non-unionized employees. Retention pay, signing bonuses or any other compensation features prohibited by the Executive Compensation Framework will not be provided.

Once an executive compensation program that complies with the Executive Compensation Framework is implemented at the Green Ontario Fund, the CEO's compensation will be subject to the limits set out in that program.

4.4 Performance Measures

The establishment of Green Ontario Fund contributes to one of the Ministry's key performance indicators (KPIs), submitted through the 2017-18 Program Review, Renewal and Transformation of achieving GHG emission reduction targets as set in legislation. The target is 36.4 million tonnes of carbon dioxide equivalent by 2050 from a current value of 170.2 million tonnes in 2014. The reduction of GHG emissions will make a key contribution to fighting climate change.

As an agency of the province, Green Ontario Fund will have many performance measures to adhere to, including:

Agency Establishment

- Adherence to conflict of interest rules
- Development of necessary policies (e.g. operating by-laws, financial policies, HR policies and supporting documentation)
- Timely recruitment of critical staff positions
- Regular reporting to Board of Directors and timely/quality direction from Board members
- Consultations held with key stakeholders

Public Accountability

- Transparent and compliant accounting of finances
- Timely and quality development of business plans and annual reports
- Adherence to requirements of Ontario Regulation 46/17 (Ontario Climate Change Solutions Deployment Corporation), other regulatory requirements, and applicable directives
- Timely reporting of issues to the Ministry

Programs

Buildings

- Anticipated reductions in GHG emissions from the residential sector, including reductions from
 - single family homes
 - multi-unit residential buildings
- Anticipated GHG emissions avoided from the residential sector, and in particular from the construction of new residential buildings
- Number of buildings for which changes were made
- Number of unique property owners or occupants (i.e. renters) that participated in making changes
- Percent and number of low-income households supported
- Number of Indigenous communities supported and populations served
- Spread of clients across the province

Businesses (small, medium and large enterprises)

- Anticipated reductions/avoidance of GHG emissions from projects supported
- Number of unique businesses supported
- Performance of each project supported (e.g. successfully completed, completion targets met)
- Amount of funds leveraged for total investment value in Ontario capital
- Number of sector models supported (i.e. changes made to one facility that could be adopted or leveraged by other facilities)

General

- Stakeholder input to program design
- Leverage existing infrastructure where it is possible and where it makes sense to do so (i.e. effective delivery of programming)

Agency Partners/Service Providers

- Reasonable costs for program delivery or service provision
- Effective delivery of programs as determined by client surveying through the website or call centre
- Number of unique partners / service providers engaged
- Partners / service providers identified through open, transparent process

Client Services

- Number of clients assisted through the Green Ontario Fund's 1-8xxx phone number
- Satisfaction of clients assisted as determined by client surveying
- Number of calls dropped
- Hits to website and amount of time on site

Other Outcomes

- Leveraging of collaboration and partnerships
- Innovation outputs such as technologies, jobs created/retained, productivity improvements

MOECC's assessment of the agency's performance on these measures will be undertaken as a part of its review of annual reports and requests for funding from the GGRA. Performance measures will also form a part of the ministry's agency governance documents (e.g. Memorandum of Understanding) and the agency's agreements with program delivery partners/service providers.

4.5 Risk Assessments and Mitigation Strategies

- The tables of Appendix **xxxxx** describe the mandatory mechanisms designed to help minimize risk associated with agencies and expenditures of GGRA funds.
- Below is a summary of some specific risks for Green Ontario Fund, some of which are managed by virtue of the mechanisms described in Appendix **xxxx**, and some of which require additional mitigation strategies.

Risk	Likelihood (L/M/H)	Impact (L/M/H)	Mitigation Strategy
Shortfall in cap and trade proceeds	M	H	- PwC's analysis will help assess and recommend program options in order to ensure programs with maximum impact are prioritized. - Programs may need to be scaled back/triaged if funding is not at anticipated levels.
Launch – Criticism of Agency Role	M	M	Plan for potential risk in communications strategy for agency launch
Low program uptake / inability to spend allocated funds within fiscal year	M	H	- Ensure agency has access to funding by the start of its fiscal year to support early program roll-out - Green Ontario Fund business planning to anticipate potential market risks to program roll-out and the impact dedicated outreach and program partners may have on those risk - Require the Agency to monitor uptake of programs and customer satisfaction.
Low uptake of distributed vouchers and associated accounting of expenditures	M	M	- The Ministry will work with the IESO to make estimates/assumptions regarding the potential take-up of the vouchers (i.e. how many technologies/rebates could be installed and issued). These estimates will be informed by IESO's previous program delivery experience. - Expenditure based on voucher distribution will be estimated based on those take-up estimates and the maximum possible rebate for each technology (alternative to be considered by Ministry is recording the average of the maximum possible rebates for all eligible technologies)
Home Energy Concierge Service becomes oversubscribed	H	H	- Green Ontario Fund and its program delivery partner, IESO, will pro-actively plan for large take-up; program communications will indicate time and quantities are limited - Green Ontario Fund and IESO will pro-actively manage expectations regarding time between sign-up and installation dates - The agreement between the Green Ontario Fund and IESO will provide flexibility to allocate partial funding from the technology incentive/vouchers program to Home Energy Concierge Service to accommodate potential excessive demand
Negative perception on the quality of expertise	M	H	IESO will train the third party installers on the expectations of client service quality and the type of information/services to be provided – providing a time window between sign-up and installation provides time for effective training

Delay in reaching clients in Northern/remot e communities	M	M	Green Ontario Fund will introduce a delay between the period in which the client signs-up for the installation and when the installation is to begin and that will be communicated. The client will receive a follow-up call to schedule a date for service delivery.
Criticism regarding targeted technolgoies	M	M	As a market entrant, Green Ontario Fund aims not to duplicate but rather leverage existing programming
Low value-for-money (e.g. more administrative costs than program offerings)	M	H	- All agency programs will be designed with value for money in mind. - Programs will incentivize and facilitate the use of low-carbon technologies when the circumstances both offer value to Ontarians and further the implementation of the government's priorities. - Conceptually, a low-carbon deployment entity should stretch public dollars further than traditional grant and rebate programs by targeting projects that, once specific market gaps are addressed, will be attractive for private investment. - Agency will consider/weigh costs of program administration against available funds for distribution/use as incentives in its program design and will favour availability of funds for incentives.
Improper procurement	L	H	- Do not exempt Agency from relevant OPS directives (i.e. procurement directive) - Ensure board develops procurement policy within first 180 days
Conflict of Interest	M	H	- Ensure board develops conflict of interest policy within first 180 days. - Ensure board members take conflict of interest training. MOECC LeSB scrutiny of Board appointees/candidates.
Perception of Conflict of Interest	M	H	Ensure board make-up includes a diverse range of skills, background, knowledge; refer to TBS Board Skills and Competencies matrix.
Conflicting/dupli cative government policies on energy efficiency leading to duplication, inefficiency and waste	H	H	Include provisions in the MOU between MOECC and the agency that require the agency to work with IESO and OEB to ensure that programs are not duplicative, leverage existing infrastructure, where possible and enhance as appropriate .

Agency makes bad loan (future programming)	M	H	- Set up a well-documented loan (or loan guarantee) application and approval process that sets out eligibility criteria, maximum loan/loan guarantee amounts, supporting documentation requirements (e.g., business case/financial model which demonstrates the borrower's ability to repay the loan). - Agency will develop a risk portfolio to manage risks associated with lending.
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4.6 Implications for Other Programs in the Ministry, Other Ministries, Agencies, Jurisdictions and Other Stakeholders

Stakeholder Management

- The table below provides a list external stakeholders and ministry partners positions and the Ministry's strategy to manage concerns and issues.
- MOECC held targeted consultations with key stakeholders, including tech firms, utilities, clean-governments, builders, building owners, large and medium emitters, lenders, experts, supplier, distributors and installers of targeted technologies, and professional organizations, on October 12th, 13th and 14th, 2016. Input from these meetings fed into PwC's recommendations for the Agency.
- In addition the Ministry held consultations with select stakeholders in Spring 2017 to solicit input and advice on program design.

STAKEHOLDER	POSITION/CONCERN/ISSUE	MINISTRY STRATEGY
Ministry of Finance and Ontario Financing Authority (OFA)	Financing activities for the Green Ontario Fund are considered a long-term activity i.e. post-2017/18 programs. As a part of program development for financing, MOECC and Green Ontario Fund may request approval by the Minister of Finance under section 28 of the Financial Administration Act (FAA) for Agency contracts or other related contracts that may increase, directly or indirectly, the indebtedness or contingent liabilities of the Province.	Green Ontario Fund to manage as it develops its business plans including plans for programming based on financing; agency to consider practices of other similar agencies (worldwide).
Residential Consumers	Positive, as the agency will improve access to information on incentives and the span of promoted technologies that synchronously assist with greenhouse gas reductions and energy efficiency. Potential exists for program branding confusion – i.e. segregated marketing for Save on Energy programming and Green	MOECC and Green Ontario Fund to continue to work with ENERGY, IESO, utilities and LDCs to support a consumer-friendly, "one-window" access to information, support, incentives. Green Ontario Fund will monitor

	Ontario Fund programming.	uptake of programs and conduct satisfaction surveys.
Commercial and Industrial Consumers	Positive, as these consumers will have access to new programs and assistance.	Green Ontario Fund will continually assess uptake of programs and conduct satisfaction surveys.
Low-carbon technology providers	Companies with eligible technologies for deployment will be supportive of Green Ontario Fund and its programs. Will be interested in Green Ontario Fund programs promoting low-carbon technologies in general and not specific products/types	Green Ontario Fund will continue to assess appropriate technologies for promotion through information and programs.
Current energy conservation program deliverers	Mixed level of support - could view the Green Ontario Fund as creating a duplicative administration system for program delivery but also be interested in access to funding to support their initiatives. The government in 2014 directed IESO, OEB, LDCs and gas utilities to undertake these conservation and energy efficiency activities and to implement these systems. Could be viewed as conflicting government policies creating duplication, inefficiency and waste by these stakeholders as well as others.	MOECC has managed the relationship through continued consultations/discussions. Green Ontario Fund will continue to consult with energy conservation program deliverers. 2017-18 programs are gap-filling and complementary – not duplicative of existing programs.
ENGOS	Concerned about ensuring that activities funded by Green Ontario Fund are “additional” (result in deployment that would not have occurred without the program); are protective of health (installations made with attention to indoor air quality), and benefit vulnerable Ontarians.	Include in MOU that the Agency consult regularly with this community. ³
Consumer advocates	Concern about ensuring funds benefit vulnerable Ontarians, including low-income households, rural communities, remote, First Nations and Metis communities.	Green Ontario Fund will continue to consult with key stakeholders as it develops its business plan and programming.
Indigenous communities	Concern about ensuring programs are designed to meet their unique circumstances.	Green Ontario Fund programs will ensure no impact on treaty rights and will consider unique circumstances in Indigenous communities.

³ For example, LHINs have a statutory requirement to consult with the community as part of their Objects: “to engage the community of persons and entities involved with the local health system in planning and setting priorities for that system, including establishing formal channels for community input and consultation;” <https://www.ontario.ca/laws/statute/06i04>.

Other jurisdictions	Supportive	No action required
Other	Partner ministries (Energy, MMA/MHO, MEDG) would like to ensure efficiency in program delivery and co-support of initiatives. Examples: ENERGY -Concern about potential impact on ability of IESO, LDCs, utilities abilities to meet conservation targets under Conservation First Framework and potential customer confusion. MEDG -Interest in ensuring the Agency's programs complement the ministry's economic development and innovation initiatives	Ensure constructive discussions continue post-Green Ontario Fund establishment

4.7 Communications Plan (to be updated)

Strategic Approach

A proactive, multi-phased and integrated rollout that highlights milestones in the development of Green Ontario Fund, including filing of regulation, selection of the Board of Directors, website launch, and programs. This approach will position the entity as an essential part of Ontario's fight against climate change that will provide households and businesses with a range of information, programs and incentives to help save money and transition to a low-carbon economy.

Key Messages

- Ontario is making significant progress on the implementation of the Climate Change Action Plan by establishing the Green Ontario Fund to help consumers and businesses find and finance low-carbon technologies to reduce greenhouse gas emissions.
- The Green Ontario Fund will ensure cap and trade proceeds are invested in a transparent way into climate actions that help households and business reduce their use of fossil fuels and adopt low-carbon technology by providing:
 - Funding to help homeowners install low-carbon technologies in homes, such as solar water heaters and ground source heat pumps
 - Support for industry to improve energy efficiency and switch to lower carbon energy
- The fund will provide more choices for cleaner, more energy-efficient and affordable options to heat and cool homes and buildings.

Roll-out and Sustaining Activities

May to June 2017 – Update on developments on the Green Ontario Fund (including establishment of the entity website, Board of Director appointments) in a province-wide news release, supported by social media rollout.

July 2017 onwards – Programs rollout. Public education campaign may include digital, print, industry and trade publications. Supported by social media rollout.

Considerations

- There may be confusion surrounding why the government needed to create a new agency and whether this agency duplicates existing programs.
- Households continue to hear how the province's actions on climate change, including the cap and trade program, are increasing costs of living, and will question how the new entity will save them money.
- Concerns will be mitigated by creating messaging that demonstrates the need for another government agency, differentiating between what it will do as compared to existing programs (such as the Green Investment Fund).
- There will also be proactive and transparent communication on how cap and trade proceeds are being invested in CCAP initiatives and emphasis on the benefits to households and businesses.

4.8 Recommendation/Approvals Sought

The Ministry of the Environment and Climate Change requests that Treasury Board/Management Board of Cabinet:

- RECEIVE the report back on the Agency's retained consultant report, proposed program offerings, operational funding requirements, assessment regarding consolidation, implementation timelines, and assessment of labour relations implications.
- APPROVE the Agency's proposed program offerings and operational funding requirements while reporting back in the Fall 2017 on future Market Transformation Initiatives.
- APPROVE the procurement of training services to train installers for the Home Energy Converge Service program for a maximum value of XX over a contract term of up to XX years.
- APPROVE a release from holdback of:
 - a. \$45,000,000 in the Green Ontario Fund Transfer Payment in the Cap and Trade Program (Vote/Item 1109-03) for initial Green Ontario Fund program offerings.
 - b. \$5,000,000, including \$XX in Salaries and Wages, in the Cap and Trade Program (Vote/Item 1109-03) for Green Ontario Fund operational requirements.
- APPROVE MOECC to proceed with an announcement of up to \$378,050,000 in 2017-18 for the Green Ontario Fund. [This includes \$1M for Woodstoves]
- Approve MOECC to enter into multi-year agreements with IESO that will commit future year funding.
- NOTE that MOECC will continue to work with the MOECC and the IESO to refine technology rebate estimates and requirements for Solar PV.