DRAFT: Small Business Lighting Re-Design

Business Case

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TABLE OF CONTENTS

List of Tables and Figures

1 Executive Summary

The new SBL program will provide lighting upgrades to Ontario's small businesses (defined as general service customers <100 kW), including participants of the prior SBL program and its predecessors. Incentives will be provided on a $/kWh rate or assumed measure cost, whichever is less and will be capped at $2000 per facility.

The program will be administered and delivered by Local Distribution Companies (LDCs) working independently or in collaboration with other LDCs or Gas utilities. The IESO will perform some central services such as the development of an assessment tool/application and province wide marketing. Local Distribution Companies have the flexibility to choose their own implementation model including but not limited to the following: through a turnkey implementation contractor, a group of qualified lighting installation contractors, internal auditors and installers, or a combination of contractors and internal staff.

Table 1: Overall Program Forecast

2020 GWh	371 GWh
2016 – 2020 Budget	$133.5 Million
LDC Budget	$118.3 Million
IESO Central Services Budget	$15.2 Million
Total Resource Cost (TRC)	1.18
Program Administrator Cost (PAC)	1.49
Level zed Unit Electricity Cost (LUEC)	4.6 cents/kWh
LDC Acquisition Cost	32 cents/kWh

1.1 *Program delivery services (IESO)*

For the first year only, centrally procured services are required from the IESO. These services include a data repository for all of the completed Work Orders that will be accessible by LDC's to access in order to produce consistent IESO and LDC reports as required. Tools will also be created to automatically populate reporting template required as per the ECA from this database. The data repository will also provide a central location for all back-up project documentation that might be requested of the IESO in the future. This database requirement is a Value Added Service and will be paid for by the LDCs for the first year. These services are currently valued at $6 per project as per existing IESO's published rate. For clarity, this rate is subject to change and the LDCs will pay the IESO at a rate established during program implementation. It is expected that once the new IT application system project is completed by the IESO, the new IT system will be able to replace this function at the end of year one.

In addition, the SBL Working Group is proposing that the IESO develop and make available an assessment tool/application to be used in the program beginning in 2016. The assessment tool is expected to collect all the facility and project details and to be submitted to LDCs. The assessment will be conducted by various

individuals depending on the delivery model chosen by the LDC. The tool could be utilized by internal LDC staff, implementers or contractors to name a few.

The budget for the assessment tool is embedded in the cost effectiveness analysis and estimated at $250,000. This is expected to be funded by IESO central services fund and not charged to LDCs as central service cost.

2 PROGRAM PROPOSAL

2.1 *Program Description*

Small business customers face numerous barriers preventing them from implementing energy efficiency retrofits. They have limited capital budgets and lack the time and expertise required to identify potential projects[1]. A large portion of small business owners lease their space and are reluctant to invest in the Landlord's property, particularly since many leases are short-term. The direct install approach is successful at enabling electricity conservation for these 'hard to reach' customers by providing financial incentives to cover up-front costs and a 'turn-key' application and installation process which makes it simple to participate.

The new Small Business Lighting program will provide lighting upgrades to Ontario's small businesses (defined as general service customers <100 kW). Incentives will be provided based on $0.22 a kWh or assumed measures cost as per the Eligible Measures List, whichever is less. There are measures that will be fully covered by the program and some that will only be partially funded by the program. There is a $2,000 incentive cap per project with standard incentives offered to projects greater than $2,000. The standard incentives rates will match the Retrofit Program incentives, which cover approximately 20% of the costs. Standard Incentives will not be permitted on the cost sharing measures. The program will be administered and delivered by individual Local Distribution Companies (LDCs).The LDCs' will also be responsible for the settlements process. However, the IESO will continue to perform some central services such as the development of an assessment tool/application and province wide marketing initiatives. Local Distribution Companies have the flexibility to choose their own implementation model including but not limited to the following: through a turnkey implementation contractor, a group of qualified lighting installation contractors, internal auditors and installers, or a combination of contractors and internal staff.

The goal of the redesigned program is to improve cost effectiveness and continue to provide program opportunities to the small business sector. Improved cost effectiveness is achieved by removing cost ineffective measures. The incentive structure of this program has changed significantly from a standard measure payment to a $/kWh performance rate. This change is expected to increase the savings per project by incenting contractors/delivery agents/installers to gain deeper savings from each project to cover their fixed costs. The incentive format is also intended to encourage contractors/ delivery agents/ installers to find additional opportunities for cost savings, for example, through negotiated bulk purchase of measures.

A full program logic model can be found in Appendix D: Program Logic Model.

LDCs are given the flexibility to deliver the program according to their customers and internal capabilities, for example an LDC can hire a full service, turnkey delivery agent or create an installer network and complete all other program aspects internally. It is expected that with greater pressures to deliver a cost effective portfolio, LDCs will look for opportunities to collaborate to reduce costs.

[1] (EPA 2007 - AESP Paper p1).

2.1.1 *Prior Small Business Lighting Program*

The IESO's (former OPA) Small Business Lighting (SBL) program provided lighting upgrades to qualifying Ontario small businesses (defined as general service customers <50 kW) at no charge for equipment and labour valued up to $1,500 (a cap that increased from $1,000 in December 2012). The 2012 SBL program provided standard incentives to encourage installations beyond the cost cap. Standard incentive payments typically cover approximately 20% of measure costs and were accessed by approximately one quarter of SBL participants in 2012.

The program was administered and delivered by individual Local Distribution Companies (LDCs). The IESO (former OPA) performed some central services such as settlements. LDC's could choose to implement the program through a turnkey implementation contractor, a group of qualified lighting installation contractors, direct service, or a mixture of contractors and direct service.

From 2008 to 2014, the program reached approximately 45% of small businesses with general service accounts less than 50kW in Ontario. Participation has been declining since 2009 and evaluation studies have indicated that the project volumes are likely to steadily decline without efforts to expand the program[2].

2.2 *Program Target Market*

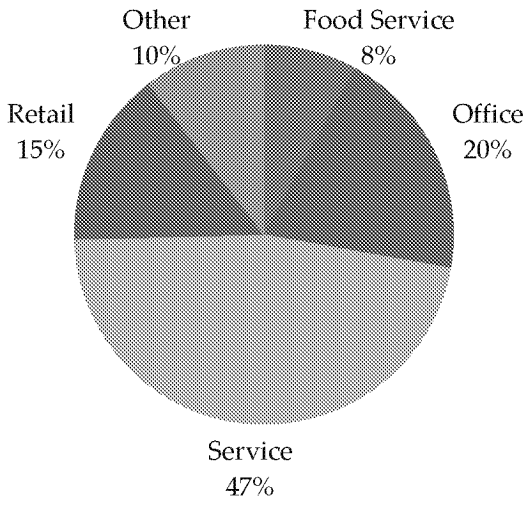
2.2.1 *Market Size & Segmentation*

The redesigned SBL program targets small business customers or general service (GS) customers with average demand less than 100 kW. There are approximately 464,835 GS customers with average demand less than 100 kW in Ontario.

In the past, the SBL program segmented customers into five sub-sectors: food services, office, retail, services and other. From 2009 to 2013, the majority of the participation in the SBL program was in the service sub-sector, followed closely by office and retail. Figure 1 provides a breakdown of the number of projects implemented in each sector from 2009 to 2013.

[2] Final Report Ontario Power Authority 2012 Small Business Lighting Process and Impact Evaluation. September 30, 2013. Research Into Action, Inc., Nexant Planning and Evaluation, Itron, Inc., Harris Decima.
http://powerauthority.on.ca/sites/default/files/conservation/2012-Small-Business-Lighting-Evaluation.pdf

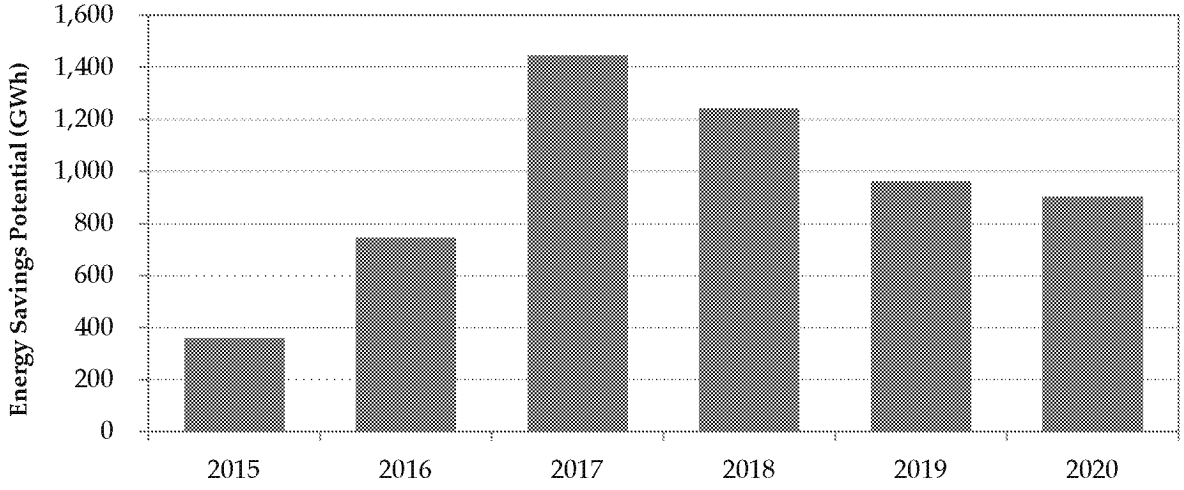
Figure 1: Breakdown of Participation by Sub-Sector (Average 2009 - 2013)



2.2.2 *Market Potential*

In 2014, the IESO commissioned an Achievable Potential study that estimated the achievable potential by end use and sector. The results of the study indicate that significant potential remains in commercial lighting. Figure 2 illustrates the results of the "Upper Achievable" scenario from the Achievable Potential Study. The results are expressed as incremental ("first year") energy savings potential when a one year payback is offered to customers and "aggressive programs."

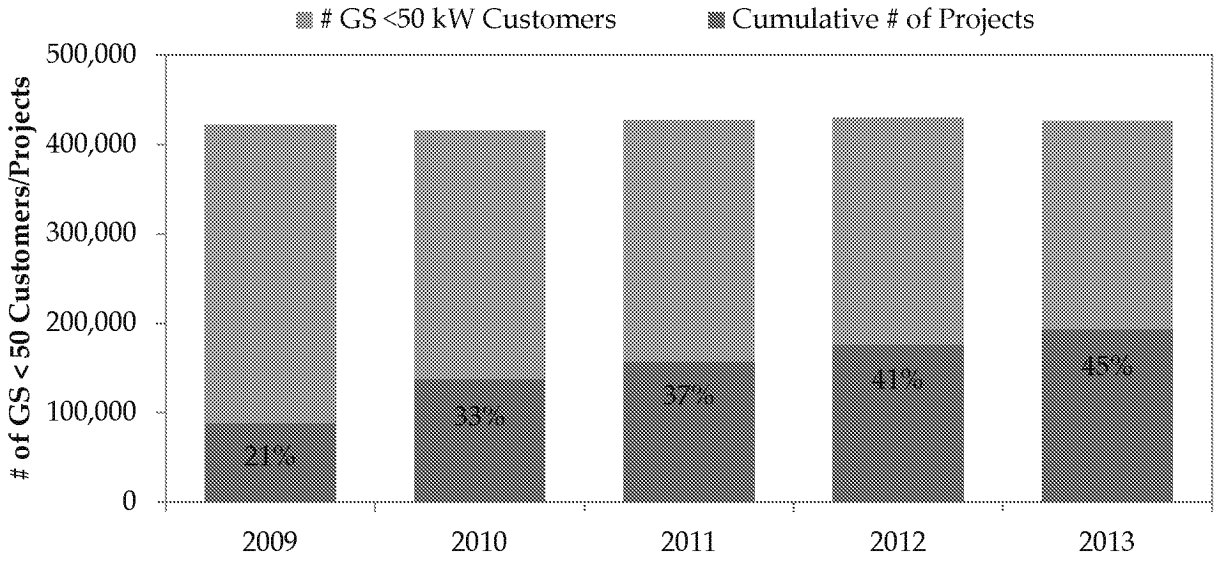
Figure 2: Commercial Lighting Potential (GWh)



In the past, lighting has achieved a significant portion of portfolio savings in the commercial sector. Historically, SBL has provided between 15 and 30 percent of commercial lighting savings (the remainder is from the Retrofit program). Assuming that the proportion of commercial lighting potential captured by the SBL program remains the same as the past, the study indicates that there is at least 80 GWh of achievable commercial lighting potential available each year of program delivery.

The IESO's current and predecessor SBL programs have achieved a high penetration of eligible customers. Figure 3, below, illustrates the total number of general service customers in Ontario with demand less than 50 kW and the cumulative number of SBL projects over the years in which the program was active. Figure 3 demonstrates that, over the past five years, the SBL program has reached 45 percent penetration. It is important to note that some accounts classified as "GS < 50 kW" are not eligible for the SBL program, for example, traffic lighting and phone booths. In some LDCs, these accounts can represent approximately 20 percent of GS < 50 kW accounts.

Figure 3: Estimated OPA Program Penetration



The 2012 evaluation of the SBL program surveyed contractors to better understand how many eligible SBL customers had been approached to get a better sense of program saturation. The evaluators found that "Half of contractors reported that over 75% of eligible businesses in their territory had been approached about the SBL program."

Though this demonstrates the success of the prior SBL program, it challenges the future program as fewer eligible customers remain. In addition, according to some LDCs and implementation contractors many remaining customers are not interested. The proposed program will cost effectively increase participation and savings by modifying two eligibility criteria to improve the market potential of the program.

1. Increase the eligible customers to include those with demand greater than 100 kW
2. Allow past-participants to enter the program

Each modification on eligibility and its impact on market potential are discussed below.

Increase Eligible Customer Size

The Ontario Energy Board "OEB" splits general service customer classes into three groups: less than 50 kW, greater than 50 kW, and greater than 5 MW. Three member LDCs of the program design group with varying sizes provided a breakdown of their customers with demand greater than 50 kW and less than 5,000 kW by 50 kW increments to estimate the proportion of customers that would be considered eligible based on the

updated program eligibility. Though the LDCs varied in size the proportion of customers that fell into the greater than 50 kW and less than 100 kW was relatively consistent, between 40 percent and 50 percent. An average between the three LDCs was used to calculate the proportion of customers that have demand greater than 50 kW and less than 100 kW and thus the number of eligible customers in the re-designed program.

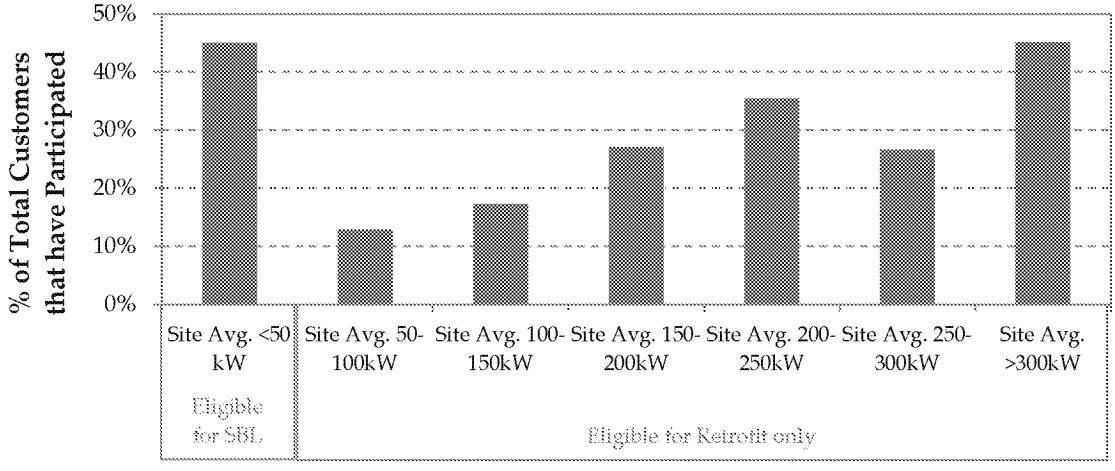
Table 2: OEB Yearbook data – # of Customers in Each Class

Customer Class	# of Customers (2013)
GS <50 kW	426,819
GS >50 kW (and <5,000 kW)	56,441
GS >50 kW and <100 kW (estimate)	27,000

The redesigned SBL program will not allow GS > 100 kW customers for at least the first year of the program. In smaller LDC territories, there are fewer larger GS customers and a significant amount of the opportunity for participation in the Retrofit program is with these customers. There is concern that allowing GS > 100 kW and GS < 200 kW will reduce participation in Retrofit and limit more extensive lighting project opportunities for these LDCs and their customers. In addition, customers that are eligible for SBL will receive a higher incentive for similar lighting measures available through Retrofit. Opening up the size eligibility criteria above 100 kW may result in unnecessarily higher payments to customers that would have participated under Retrofit.

Following recommendations from the 2012 EM&V report, analysis was undertaken by PowerStream to review participation levels in both SBL and Retrofit of general service customers within each 50 kW increment between 50 kW and 300 kW and above. Data from one LDC service territory was used. Figure 4 displays the percent of total customers within each 50 kW increment up to 300 kW that have participated in either SBL or Retrofit. Participation is represented as a percentage of the number of customers within each 50 kW increment. The analysis shows that participation levels are above 40% for customers that are eligible for SBL (customers with less than 50 kW of average demand). Similarly, participation levels are over 40% for customers over 300 kW of average demand that are eligible for Retrofit but not eligible for SBL.

Figure 4: Percent of Total Customers in each Increment that have Participated



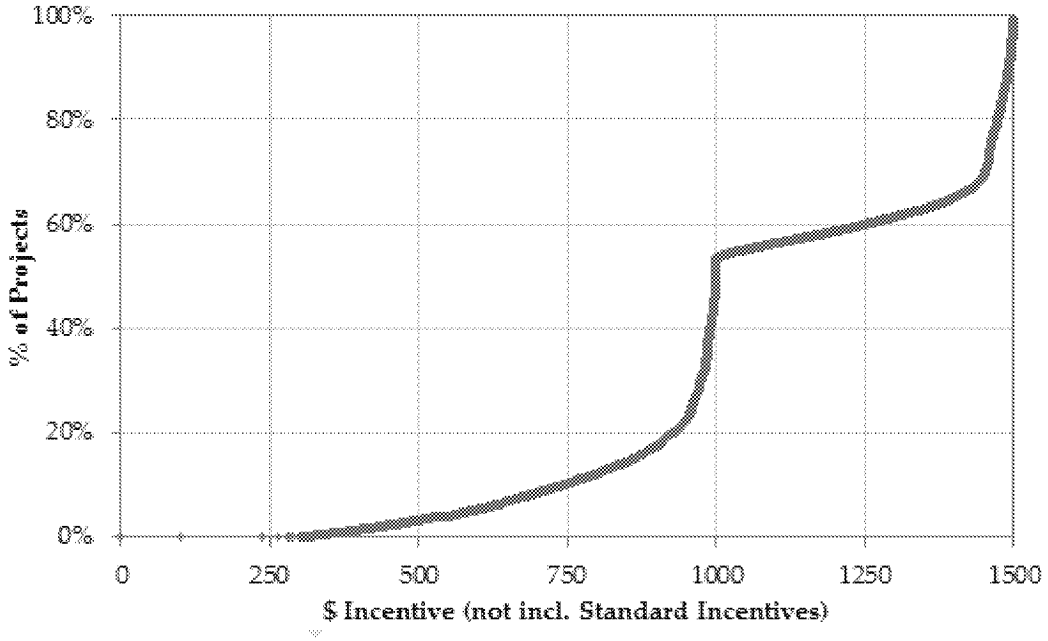
It was found that participation rates for customers between 50 kW and 300 kW of average demand were lower. This indicates that the direct install approach may be more appropriate for customers within these demand increments and that opportunities have been missed in the past.

The impact of increasing eligibility to GS < 100 kW will be assessed after the first year evaluation report to determine whether an additional increase in eligible size is feasible.

Allow Past-Participants

Though the program has reached a very high proportion of eligible customers, there is an indication that not all opportunities have been reached. The program began with a $1,000 incentive cap. The incentive cap was increased to $1,500 in December 2012. Figure 5 illustrates the percent of projects that fall within each incentive range for the life of the Small Business Lighting program and predecessor programs. Figure 5 clearly indicates that most projects used the maximum incentive available and that the increase in incentives was utilised.

Figure 5: Incentives by Project



In the 2012 evaluation report of the SBL program, evaluators collected information about remaining lighting at participant sites. The evaluators found that "… just less than half of the 66 sites with full on-site surveys had not replaced all of their lights…" and that "about two-thirds of facilities that did not have all lights replaced had T-12s installed in the facility."

In 2014, Enersource completed surveys of business customers of various sizes including both GS less than 50 kW and GS greater than 50 kW. The surveys requested details on a variety of information from both participants and non-participants of SBL. *Table 3* outlines the proportion of GS <50 kW customers that also participated in Retrofit. The results of the survey clearly show that customers that participated in SBL were more likely to also participate in Retrofit as well. It is possible and very likely that participation in SBL lead small businesses to pursue more efficiency opportunities through Retrofit incentives.

Table 3: GS < 50 kW Comparison of Participants vs. Non-Participants

# GS < 50 kW Customers Surveyed	SBL Past Participant (Y/N)	Participated in Retrofit (%)
1,236	Y	6.5%
1,920	N	0.0%

Table 4 outlines the measures present in each of the GS <50 kW businesses surveyed. There is an indication that many of the businesses that have not participated in SBL may already have efficient lighting, for example, 16 percent of non-participants have LED lighting whereas only nine percent of participants have LED lighting. Over the life of the SBL and predecessor programs there have been several changes, for example, eligible incentive levels have increased and additional measures have been added. Opportunity still exists in businesses that have already participated in SBL as the opportunities have changed and survey data indicates that many have not converted to more efficient technologies.

Table 4: Enersource Survey Data - Measures

Measure Group	Past SBL Participants	GS < 50 kW Non-Participants
T8 & T5	76%	65%
T12	5%	4%
CFL	7%	10%
Incandescent	0%	0%
LED	9%	16%
Metal Halide	3%	5%

Additional measures will provide additional opportunities for past participants to re-engage in the program beyond the measures available in the past.

2.2.3 *Market Approach (proposed delivery channel)*

Over the past several years the SBL program has been available to customers, LDCs have gained relationships and experience with the delivery model that works for their service territory and their customers. In the re-designed SBL program, LDCs will have the ability to choose their method of delivery that works best for their customers and region. Figure 6 rates the various risk components for some of the approaches available to LDC's. Figure 7 illustrates the benefits of two approaches that can be used for delivery of the program from the 2012 SBL Evaluation Report.

Figure 6: Delivery Approach Risk

Description	Cost	Impact on internal resources	Compliance	Customer relationship	Channel partner relationship
Hire a turnkey implementation contractor	High	Low	High	Medium	Low
Hire a group of qualified contractors	Low	High	Medium	Medium	High
Hire internal auditors/installers	Medium	High	High	High	Low
Open market – use customers' preferred contractors	Low	Medium	Low	Medium	High

Figure 7: Delivery Approaches

Table 3-27: Small-Commercial Direct-Install Delivery Approaches

DELIVERY APPROACH	BENEFITS
One or two contractors deliver program, selected by RFP process	Program administrator has more control over work performed. Selected contractors may offer lower installation costs in exchange for a higher volume of work. May help overcome barrier of contractor reluctance to take on smaller, less profitable projects.
Open pool - any trade ally meeting program qualifications can submit jobs	Allows faster program launch. Provides trade allies with equal opportunity to participate, reducing the possibility they see the program as taking work away or favoring competitors. Leverages existing relationships between trade allies and business owners. Allows local trade allies to provide ongoing service for installed equipment.

Source: 2012 SBL Evaluation Report

2.3 *Analysis of Program Energy Savings*

2.3.1 *Per-measure assumptions (kW, kWh)*

Going forward, cost effectiveness will be a more critical measure of program success. To lower the risk of delivering a cost ineffective program, almost all measures must be cost effective from a TRC and PAC perspective. To offer the full range of lighting solutions to the customer, some measures that are not cost effective have remained in the program and will be offered to the customer under a cost sharing method, this

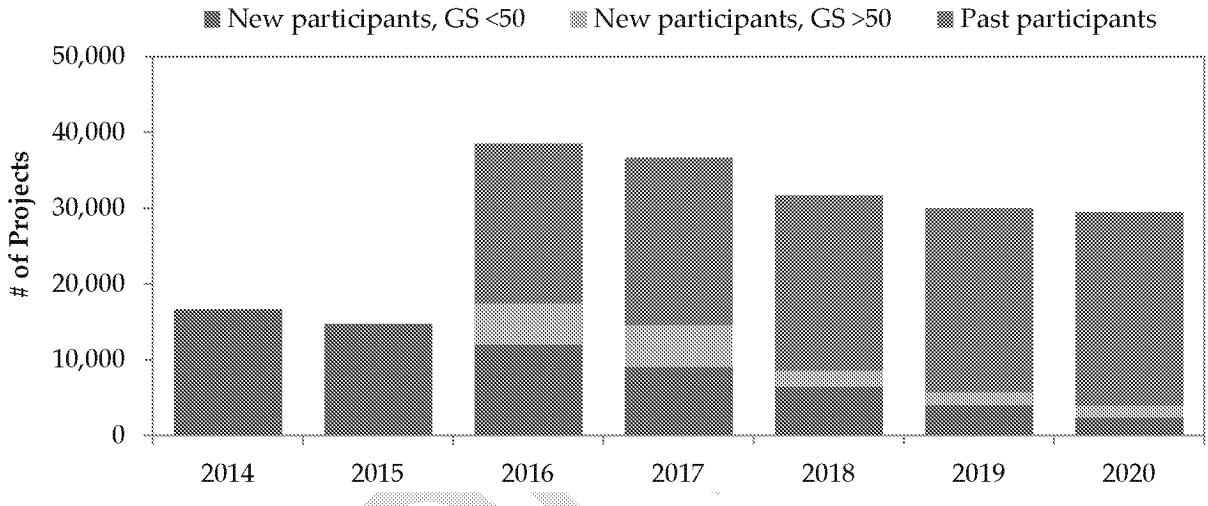
will help ensure that all measures will be cost effective. CFL measures are now removed from the program because they are deemed to be no longer cost effective for this program.

Detailed measure-level assumptions are provided in Appendix C: IESO Cost Effectiveness Tool and Eligible Measures List.

2.3.2 *Participants by sector*

Participation by sector is expected to remain similar to the past with majority of participation occurring in the service sector. Participation has been analyzed using three separate archetype projects: past participants, new participants GS <50 kW and new participants GS >50 kW. Figure 8 displays the breakdown of participation by archetype and the following sections describe the assumptions used to develop forecasts for each archetype.

Figure 8: Participation by Archetype



Past Participants

Based on the prior SBL and predecessor programs, customers were not able to participate more than once, including if a building changed ownership or if additional measures or funding became available through the program. From 2008 to 2014, the SBL program has reached over 200,000 eligible customers with the peak participation in 2009 (over 65,000 projects).

With additional measures and an alternate funding mechanism, it is expected that up to 50 percent of past participants will re-engage with the program by 2020. 20 to 25 thousand past participants are assumed to re-engage with the new SBL program each year from 2016 to 2020. This represents between 10 and 15 percent of past participants each year. There are two driving factors impacting re-participation rates. First, since contractors/delivery agents/installers will be paid on a per kWh rate, it is expected that there will be slightly less interest in re-engaging past participants because less fixed costs (lifts, outreach, marketing, etc.) will be covered by the $/kWh rate. However, contractors/ delivery agents/ installers will have a better understanding and relationship with past customers and will have the ability to better target projects with potentially more savings (and thus a higher payment) and require less effort to re-engage the customer rather than engaging a new customer.

New Participants, GS <50 kW

As discussed in section 2.2.2, a large proportion of previously eligible customers have participated in the SBL and predecessor programs. It is expected that the number of new GS < 50 kW participants will continue to decline at an increasing rate. The program is expected to reach a final saturation of just over 50 percent of GS < 50 kW customers or approximately 34,000 additional SBL projects over five years.

New Participants GS >50 kW

It is expected that a new offering available to this segment will generate interest. Though this segment of customers has had the opportunity to participate in Retrofit, many LDCs find low participation compared to larger GS customers. It is believed that this size of customer has similar challenges (e.g., financial, time, expertise) as GS < 50 kW customers. The early years of the SBL and predecessor programs saw a spike in participation in the first two years of the program followed by a slight year over year decline in participation. The re-designed SBL program is similar to the past program and it is anticipated that this segment will respond similar to the GS < 50kW customers in the early years of SBL's predecessor program. Therefore, it is expected that there will be a peak in participation in years one and two (approximately 20 percent of eligible customers) and a six percent year over year decline thereafter for a final participation of over 16,000 projects.

2.3.3 *Aggregated incremental energy savings and peak demand reduction*

Energy and peak demand savings are assessed at the archetype level: past participants, new participants GS <50 kW and new participants GS >50 kW. *Table 5* compares each archetype in the new program compared to the prior program.

Table 5: Archetypes compared to prior SBL program

	Current Archetype	Past Participants	New Participants GS <50 KW	New Participants GS >50 KW
First year demand savings (kW)	1.11	0.22	1.31	1.96
First year energy savings (kWh)	3,832	1,127	4,506	6,759

New GS < 50 kW customers are estimated to save, on average, approximately 4,500 kWh per project. It is estimated based on OEB Yearbook data that GS <50 kW customers use, on average, 30,000 kWh per year. Depending on the type of business, lighting is approximately 20 – 40% of annual energy use, recognising there is a very large deviation in these assumptions. LEDs improve efficiency by approximately 70 percent and T5s improve efficiency by approximately 50 percent. Based on the assumptions discussed above, the average maximum lighting potential per business can be estimated at approximately 4,500 kWh.

It is expected that past participants will save an additional 20 to 30 percent relative to the archetype project in the prior SBL program with their re-participation in the program. Higher savings per project are possible if a customer participated before the increase in the incentive cap and the introduction of LEDs to the program.

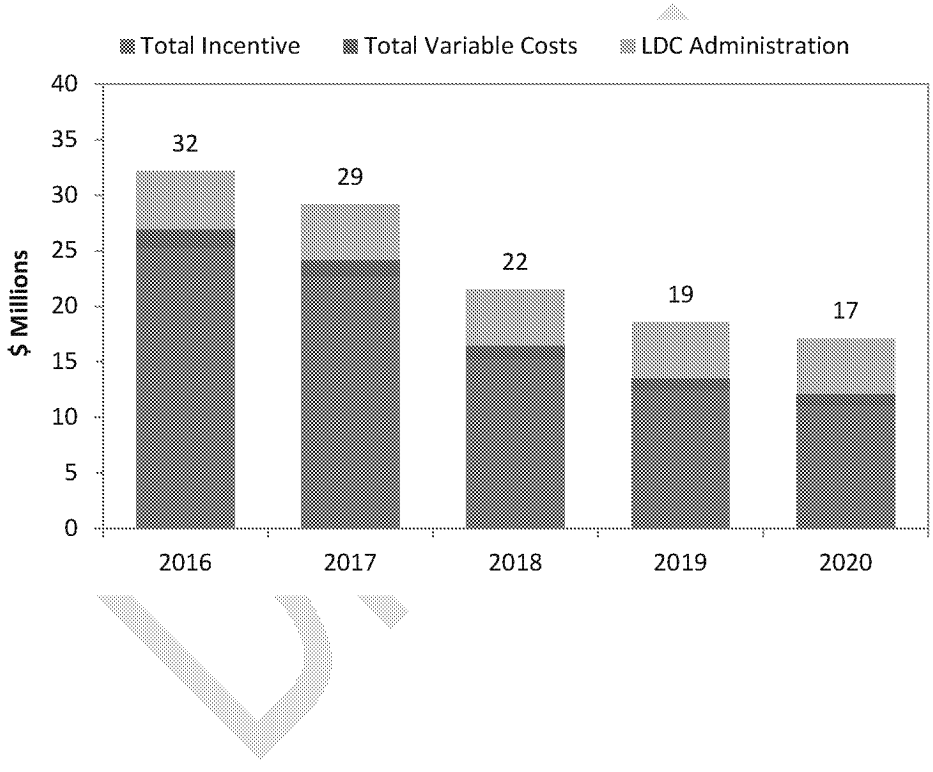
New GS > 50 kW customers are expected to achieve 50 percent higher participation than GS < 50 kW customers simply due to the larger lighting load based on the size of business.

2.3.4 Projected program impacts (LDC, region, province)

2.4 Program Financial Impact

As illustrated in Figure 9, LDC costs are primarily variable and dependent on the number of projects and the savings achieved (customer incentives incurred by the LDC). Remaining costs are related to LDC administration. LDCs will track their costs and report back to IESO as per the Reporting Requirements identified in the ECA. Each costs category is described in the following sections.

Figure 9: Projected 2016 to 2020 SBL LDC Costs



2.4.1 *Per-project budget assumptions*

The IESO during the first year will continue to provide central services for data storage and reporting at a rate of $6 per project. The $275 participant based funding will no longer be available. The participant based funding created an incentive to get a higher volume of projects as opposed to deeper savings per project. This cost component is removed in the re-designed program. Instead, contractors/delivery agents must manage their projects within a $/kWh budget or the measures cost cap as per Eligible Measures List as discussed in the following section. If LDCs wish to continue to fund contractors through a per project incentive, they can do so from their allocated budgets and monitor the impacts to their program and portfolio cost effectiveness. The ESA permit costs were also included in the per-project budget assumption. A total of $6 million ($1.2 million a year) is projected for ESA permits cost. This amount was developed based on historical ESA costs of the SBL program. The assumption is that not 100% of the forecasted projects will require an ESA permit due to the nature of the project (e.g. screw-ins A Lamp LEDs do not require ESA permit).

2.4.3 *Customer Incentives*

Customer incentives will be paid using a $/kWh rate based on the gross savings or the assumed measure cost within the Eligible Measures List, whichever is less. The rate will be a maximum of 22 cents per kWh. This rate is designed to cover measure cost and labour costs for LED measures. Fluorescent lighting such as T12 replacements will be partially funded and customers will top-up the remaining measure and labour costs using their own money. An incentive cap of $2,000 per project is included in the program rules. To determine the $2,000 cap, results from the predecessor program were analyzed. Most of the projects in the 2011-2014 Small Business Lighting program reached the program incentive cap of either $1,000 or $1500. The jurisdictional scan results in Table 19 also show small business programs with average expenditures just over $7,900. Given that the eligible customers will now be up to 100 kW compared to 50 kW in the past, the assumption is that the facilities will have more opportunities. This $2,000 cap was also created to ensure that larger projects are enrolled into the Retrofit Program. Standard Incentives will be provided on project greater than $2000. The standard incentives will match the Retrofit Program incentives. Using the kWh savings per archetype project specified in *Table 6*, the average incentive per project was developed.

Table 6: Average Incentive per Archetype Project

	Current Archetype	Past Participants	New Participants GS >50 KW	New Participants GS <50 KW
First year energy savings (kWh)	3,832	1,127	6,759	4,506
Incentive per project ($)	1,278	248	1,487	991

Detailed measure-level savings assumptions used to calculate incentive levels and additional discussion are provided in Appendix C: IESO Cost Effectiveness Tool and Eligible Measures List.

2.4.3 Other delivery costs (service providers, marketing, sales)

Project level

Other delivery costs include labour costs, audit costs, and lift costs. In the past, these costs were considered "contractor services" and included within the incentives paid at the project level. These costs will continue to be incurred and will be managed by the contractor/delivery agent/installer as part of the $/kWh rate and new measures cost and/or through the LDC's selected delivery model.

Program level

Program level, fixed costs include LDC administration costs and are estimated at $5 million per year These costs would include the costs of procuring and maintaining a local service provider, marketing and promotions of the program, and any other costs deemed necessary by the LDC to deliver a successful program. This cost component can be highly variable across LDCs depending on the selected delivery model. LDCs are encouraged to collaborate to reduce program level costs and reduce cost effectiveness risk. This amount aligns with historic LDC spending on program administration costs ($3 million) as well as a portion of participant based funding spent which is no longer part of the re-designed program ($2, million).

In addition to the LDC costs, there are IESO central services costs that will not be charged back to LDCs. This includes a one-time cost of $250,000 estimated for the development of a tool and/or application that can allow contractors/delivery agents/installers to easily select eligible base measures from a drop-down menu and specify the efficient measure to replace it. This is recommended to be developed by IESO and funded by IESO central services fund and not charged to LDCs as central service cost. The contractors/delivery agents/installers will also select a business sub-segment (for example, restaurant, convenience store, church, etc.) from a drop down to better represent operating hours. The calculation of the kWh savings and the resulting incentive will be calculated within the Tool. A total of $3 Million per year is also budgeted for IESO central services costs to execute the marketing strategy discussed in Section 2.6.6. In total the IESO will require a total estimated central services budget of $15.2 million.

2.4.4 Equipment costs

Incremental equipment costs (or participant costs) were developed and refined using the current cost of individual measures. These costs are described in greater detail in Appendix C: IESO Cost Effectiveness Tool and Eligible Measures List. The estimation of the assumed measure costs are based on Navigant's market research. These costs have been compared to costs provided by suppliers and contractors to ensure they are reasonable measure costs. The estimation of the labour component of measure costs was developed using the recent rulemaking completed for the Department of Energy[3]. Figure 10 contains the information used to estimate labour costs. Though this component of costs is estimated separately, the labour costs are also covered by the $/kWh rate provided through the program. However, labour costs are included in the incremental equipment costs used to assess the TRC of the program.

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[3] Final Rule Technical Support Document Energy Conservation Program for Consumer Projects and Certain Commercial and Industrial Equipment: General Service Fluorescent Lamps and Incandescent Reflector Lamps.
http://www.regulations.gov/#!documentDetail;D=EERE-2011-BT-STD-0006-0066. December 2014.

Figure 10: Inputs to Labour Estimates

Table 8.2.4 Relamping Times for General Service Fluorescent Lamps and Incandescent Reflector Lamps*

Lamp Type	Spot Relamp Time *minutes*	Group Relamp Time *minutes*	Average Relamp Time *minutes*	Time to Install Lamps and Ballasts** *minutes*
General Service Fluorescent Lamps (Commercial and Industrial)				
2-Lamp Fixture - 4-Foot Medium Bipin, 4-Foot T5 Miniature Bipin	27.0	14.0	23.8	30.0
4-Lamp Fixture - 4-Foot Medium Bipin	28.0	15.0	24.8	40.0
2-Lamp Fixture - 8-Foot SP Slimline	20.5	10.5	16.8	55.0
2-Lamp Fixture - 8-Foot RDC HO	26.5	13.5	22.5	60.0
Incandescent Reflector Lamps (Commercial)				
All			4.0	N/A

* GSFL labor times are from the 2011 Ballast Rule. IRL labor times are from *RS Means*. DOE assumed that residential sector consumers install their own lamps when replacing lamps; thus, DOE only modeled residential sector installation costs when entire lamp-and-ballast systems are installed, and only the times in the "Time to Install Lamps and Ballasts" column apply.

** For new construction, renovation, and major retrofit GSFL purchase events, DOE increased labor times by 2.5 minutes to allow for the installation of a luminaire disconnect.

For lamp-and-ballast installations, DOE derived labor rates for electricians and helpers from *RS Means*. Labor rates are the sum of the wage rate, employer-paid fringe benefits (*i.e.*, vacation pay, employer-paid health, and welfare costs), and any appropriate training and industry advancement funds costs. An electrician's average hourly rate with overhead and profit is typically $81.00 (in 2013$), and a helper's average hourly rate is $55.40 (in 2013$). As in the 2011 Ballast Rule, DOE assumed that 50 percent of the electrician labor rate and 50 percent of the helper labor rate (for a total of $68.20 in 2013$) make up the lamp-and-ballast installation rate.

Table 8.2.5 Relamping and Lamp-and-Ballast Labor Cost for General Service Fluorescent Lamps and Incandescent Reflector Lamps

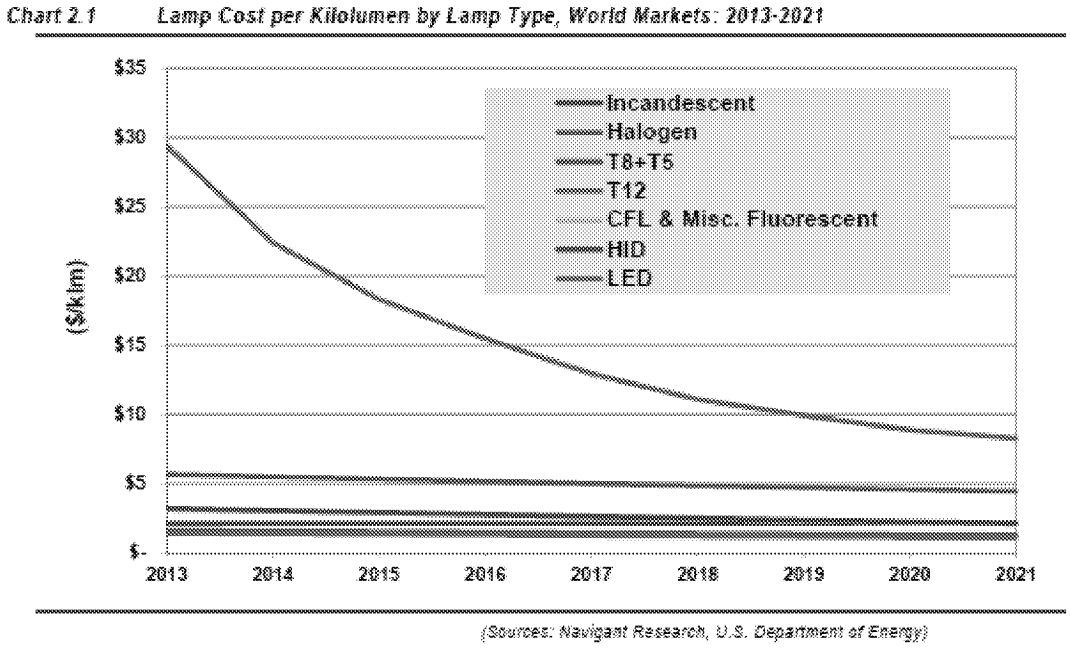
Lamp Type	Relamping Labor Cost *(2013$)*	Labor Cost to Install Lamps and Ballast* *(2013$)*
General Service Fluorescent Lamp (Commercial and Industrial)		
2-Lamp Fixture, 4-Foot Medium Bipin and 4-Foot T5 Miniature Bipin	$6.78	$34.10
4-Lamp Fixture, 4-Foot Medium Bipin	$7.07	$45.47
2-Lamp Fixture, 8-Foot SP Slimline	$4.80	$62.52
2-Lamp Fixture, 8-Foot RDC HO	$6.42	$68.20
Incandescent Reflector Lamps (Commercial)		
All	$1.14	N/A

*For new construction, renovation, and major retrofit GSFL purchase events, DOE increased the labor cost to install lamps and ballast by $2.84 (in 2013$) to allow for the installation of a luminaire disconnect.

Source: Navigant analysis, DOE

One concern of the program in the past was the outdated measure cost information. The prior SBL program and predecessor programs paid for projects based on assumed measure costs. Therefore, program payments were not flexible to changing market costs. This structure has resulted in both over payments and underpayments. For example, costs for LEDs continue to decline over time and are expected to continue to decline, as illustrated in Figure 11.

Figure 11: Lamp costs over time



Also, in 2011 the cost of rare earth metals increased significantly which impacted the cost of lighting measures. In this instance the prices in the measure list were not sufficient. The use of a $/kWh rate will allow contractors/delivery agents/installers and LDCs to manage costs as they see fit.

2.4.5 Aggregated budget by year

The re-designed SBL program will have an annual budget between $20 and $35 million. As illustrated in *Table 7*, below, the majority of costs are expected to be incentive costs.

Table 7: Annual Re-designed SBL Program Budget

	2016	2017	2018	2019	2020
	2016	2017	2018	2019	2020
Total Incentive	25,255,338	22,654,583	15,329,539	12,519,938	11,116,406
Total Variable Costs	1,654,276	1,355,436	1,173,271	1,110,573	1,091,847
LDC Administration	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
IESO Central Services	3,250,000	3,000,000	3,000,000	3,000,000	3,000,000
Total	35,159,614	32,010,019	24,502,810	21,630,512	20,208,254

2.4.6 Total costs over the expected program life

The costs of the re-designed SBL program are expected to be approximately 6.1% of the total 2015 to 2020 budget.

Table 8: Program Life Costs

	2015 – 2020 Costs
Re-designed SBL Program Budget	$133.5 million
Total Framework Budget	$2.2 billion
% of Total Budget	6.1%

2.5 Program Cost Effectiveness

The program is forecasted to be cost effective in all program years with an overall PAC ratio of 1.49, an overall TRC ratio of 1.18, and an overall LUEC of 4.6 cents per kWh. The program is forecast to achieve 371 GWh of annual energy savings by 2020 or 5.3% of the provincial target.

Table 9: Program Cost Effectiveness

	2016	2017	2018	2019	2020
Incremental Energy Savings	107,915	96,798	65,494	53,485	47,484
Incremental Peak Demand Savings	15.33	13.75	9.30	7.60	6.74
TRC	1.13	1.22	1.18	1.18	1.18
PAC	1.51	1.61	1.47	1.41	1.38

LUEC	0.041	0.042	0.047	0.051	0.054

2.5.1 *Sensitivity Analysis*

Several scenarios were assessed to better understand program design and performance risks. Each scenario is described and tables are provided outlining the impact on energy savings, peak demand savings, cost effectiveness, and total budget.

Performance rate ($/kWh)

The current program design offers an incentive of 22 cents per gross kWh achieved. One of the scenarios investigated was the impact of offering 25 cents per gross kWh achieved. As anticipated with increasing the offer to 25 cents the budget increased to 7% of total framework budget. There was no impact on energy or peak demand savings. TRC was also not impacted. The PAC was lower at 1.37 for the program and the LUEC also increased to 5.1 cents per kWh.

Table 10: Impact of Increasing $/kWh Rate to $0.25/kWh

	2016	2017	2018	2019	2020
Incremental Energy Savings	107,915	96,798	65,494	53,485	47,484
Incremental Peak Demand Savings	15.33	13.75	9.30	7.60	6.74
Total Budget	$38,606,941	$35,103,281	$26,597,031	$23,342,005	$21,728,811
TRC	1.13	1.22	1.18	1.18	1.18
PAC	1.38	1.47	1.35	1.31	1.28
LUEC	0.045	0.046	0.052	0.055	0.058

Participation Projections

The program design assumes that the majority of participants will be past participants re-engaging in the re-designed SBL program. From 2016 to 2020, it is assumed that 70 percent of participants will be past participants, 10 percent of participants will be GS > 50 kW, and 20 percent of participants will be GS < 50 kW. To understand the sensitivity of these assumptions, we assessed three participation scenarios: (1) 30 percent more past participants; (2) 10 percent more GS > 50 kW; and, (3) 20 percent more GS < 50 kW. The results of each scenario are presented in the Tables, below.

Due to the performance-based funding model, there is little variation across the three scenarios. The variable program costs are small; therefore changes in participation do not significantly impact the program metrics. The impact on overall budget and savings is minimal.

Table 11: Participation Scenario – 30 percent more past participants

	2016	2017	2018	2019	2020	All Years
Incremental Energy Savings	114,578	103,794	72,840	61,198	55,583	407,993
Incremental Peak Demand Savings	16.27	14.74	10.35	8.69	7.89	57.95
Total Budget	$36,990,575	$33,892,888	$26,479,823	$23,706,375	$22,387,910	$143,457,571
TRC	1..15	1.24	1.22	1.23	1.25	1.21
PAC	1.53	1.63	1.51	1.47	1.45	1.53
LUEC	0.041	0.041	0.046	0.049	0.051	0.044

Table 12: Participation Scenario – 10 percent more GS > 50 kW

	2016	2017	2018	2019	2020	All Years
Incremental Energy Savings	111,391	100,273	66,884	54,527	48,527	381,602
Incremental Peak Demand Savings	15.82	14.24	9.50	7.74	6.89	54.20
Total Budget	35,996,525	32,843,647	24,836,261	21,880,600	20,458,342	136,015,379
TRC	1.14	1.23	1.19	1.19	1.19	1.18
PAC	1.52	1.63	1.48	1.42	1.39	1.51
LUEC	0.041	0.042	0.047	0.051	0.053	0.045

Table 13: Participation Scenario – 10 percent more GS < 50 kW

	2016	2017	2018	2019	2020	All Years
Incremental Energy Savings	113,010	100,670	68,204	55,219	48,490	385,594
Incremental Peak Demand Savings	16.05	14.30	9.69	7.84	6.89	54.77
Total Budget	36,403,347	32,949,770	25,160,636	22,051,520	20,452,439	137,017,711
TRC	1.14	1.23	1.19	1.19	1.19	1.19
PAC	1.53	1.63	1.49	1.43	1.39	1.51
LUEC	0.041	0.042	0.047	0.051	0.054	0.045

To help further understand the sensitivity of the forecast assumptions, Table 14 shows the results of a participation scenario at 25% of the forecasted participation rates. Even when forecasting unusually low enrolment into the redesigned SBL Program, where the majority of the costs become fixed (administration), and the forecasted number of projects and energy savings per project together are only 25% of the business case forecast, the resulting PAC has -$16.7 million in net benefit over 5 years. This means an average annual potential loss of $3.3 million. If projects are significantly smaller than anticipated, the primary risk is cost effectiveness.

Table 14: Participation Scenario – 25% of Forecasted Participation

	2016	2017	2018	2019	2020	All Years
Incremental Energy Savings	28,253	24,248	16,375	13,370	11,871	94,117
Total Budget	16,121,479	14,875,050	13,032,677	12,329,814	11,979,076	68,338,096
TRC	0.76	0.78	0.66	0.61	0.58	0.69
PAC	0.86	0.87	0.69	0.62	0.58	0.74
LUEC	0.072	0.078	0.101	0.117	0.128	0.092

LDC Administration Spending

The current program assumes that LDC administration spending is $5 million per year. This group of scenarios assessed the impact of an overall increase in LDC administration spending to $10 million.

The addition of additional costs had a significant, negative impact on cost effectiveness from a TRC, PAC, and LUEC perspective. The cost effectiveness metrics are similar to the past SBL program at marginal TRC (hovering at 1.0), and lower PAC (between 1.1 and 1.4). The LUEC is significantly higher at 47 to 67 cents per kWh.

Table 15: Higher Overall LDC Spending

	2016	2017	2018	2019	2020	All Years
Incremental Energy Savings	107,915	96,798	65,494	53,485	47,484	371,176
Incremental Peak Demand Savings	15.33	13.75	9.30	7.60	6.74	52.72
Total Budget	40,159,615	37,010,019	29,502,810	26,630,512	25,208,254	158,511,210
TRC	1.04	1.11	1.04	1.01	1.00	1.05
PAC	1.32	1.40	1.22	1.14	1.10	1.26
LUEC	0.047	0.049	0.057	0.063	0.067	0.054

If projects are significantly smaller than anticipated, the primary risk is cost effectiveness. Some years are no longer TRC positive.

2.6 *Program Operations Plan*

2.6.1 *Eligibility*

Customer Size

For 2016, GS customers that are less than 100 kW will be eligible for the program. After the first year evaluation becomes available, the Business Working Group will investigate the participation and impact of allowing larger customers into the program and re-assess eligibility. Key considerations when assessing whether to increase customer eligibility size will be: whether participation in SBL leads to higher participation in Retrofit from this segment of customers, whether the ability of larger customers to participate in SBL is reducing the number of lighting projects through retrofit, and whether the incentive levels and savings are as expected and positively contributing to the cost effectiveness of the program.

Past participants

Past participants will be allowed to participate in the re-designed SBL program. Eligibility will be assessed on the base measure being replaced. Base measures that compromise the cost effectiveness of the program will not be eligible for replacement and installers will not be paid an incentive.

Facilities will not be eligible to participate in the re-designed SBL program more than once, for example, a past participant is a facility that participated prior to 2016.

A specific audit plan will be developed to ensure that participants, contractors, delivery agents, and installers are adhering to the program eligibility criteria.

It is recommended the Business Working Group assess the size of past participant projects as part of a bi-annual review to determine whether they are meeting expectations and positively contributing to cost effectiveness.

The bi-annual review and would also include a review of other program elements such as the funding rate, measures, measure costs, participation rates, and incentive cap to ensure they are at a level that drives the expected program participation rates.

2.6.2 *Payments to customers*

Contractors/installers/delivery agents will determine the appropriate measures for the customer based on a mandatory audit of the facility. They will calculate the total kWh savings using the Tool/application developed for the program. The $/kWh rate will determine the payment amount for the project and a net bill will be provided to the customer if costs sharing measures were installed. The contractors/installers/delivery agents will receive the $/kWh funding from the LDC. Contractors/installers/delivery agents will be required to submit customer invoices with a breakdown of both labour and equipment costs. Audits will include a confirmation of the customer's facility type to ensure the operating hours of the measures are appropriate.

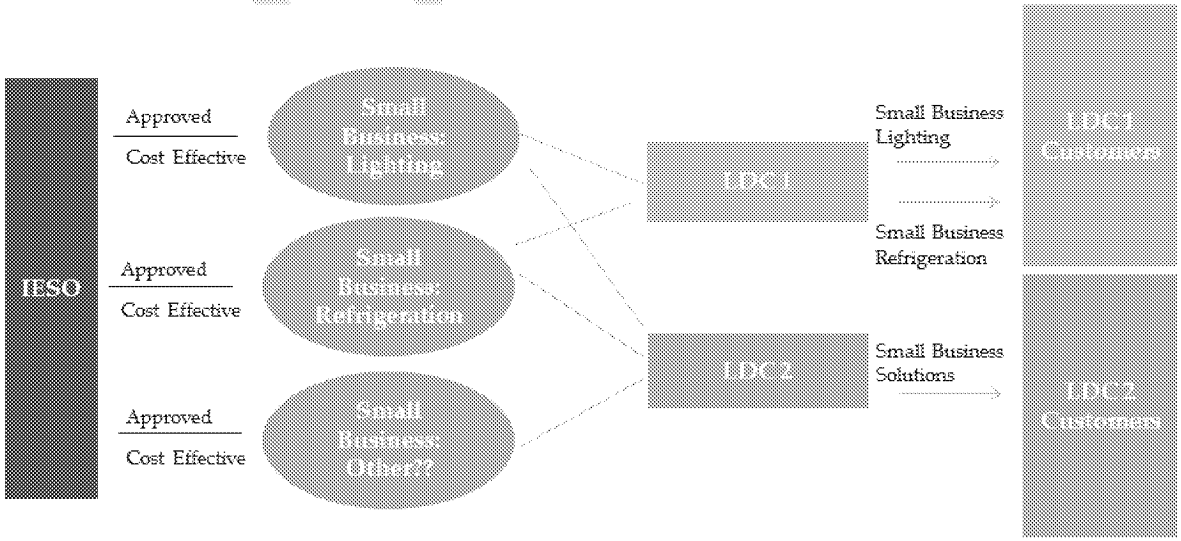
2.6.3 *Integration with other programs*

LDCs can partner with gas utilities depending on the measures that are offered (i.e. HVAC and Refrigeration) and if it aligns with their delivery model. The re-designed SBL program can open opportunities for customers to consider Retrofit projects. The standard incentives that will be offered for projects that exceed the $2,000 match the Retrofit Program incentives for the same measures. This typically covers approximately 20% of the measure cost. Based on the LDC delivery model, integration with Retrofit to introduce additional opportunities to the customer is possible.

In the past, there were no other opportunities for GS <50 kW customers beyond lighting. Past evaluation reports have recommended additional measures and end uses for this segment of customers. This program design, specifically the $/kWh funding rate and LDC-selected program delivery, will serve as a model for other end uses and measures. Figure 12, below, outlines the structure of additional programs to the small business segment from a program approval perspective and LDC delivery perspective. Each new program, for example, small business refrigeration, will be approved by the IESO as a stand-alone program and will be cost effective as an individual "module." Each LDC can choose how the small business modules are delivered to customers. Two examples of potential delivery methods are:

1. Modular Delivery: each program is marketed, promoted, and delivered as a distinct program.
2. Consolidated Delivery: all small business programs are marketed, promoted, and delivered as a single program. Participants undergo one audit and have a full-service interaction with the LDC and/or delivery agents.
3. Hybrid Delivery: programs are grouped as the LDC deems appropriate, for example an LDC may have a custom or regional program that is aimed towards the small business segment. The LDC may gain efficiencies from combining delivery of two programs, but maintaining the third program as a stand-alone offering.

Figure 12: Illustrative Integration with Other Programs



2.6.4 *EM&V Strategy*

The EM&V strategy for the re-designed SBL program will be subject to the IESO EM&V Protocols. LDCs will be collecting information such as: facility address, contact information, date of assessment and installation, measures installed, supporting documents (photos, work orders, invoices etc.) to help facilitate the EM&V process.

2.6.5 *QA/QC process*

Inspections will be conducted annually of facilities selected for QA/QC inspections in accordance with the Sampling Protocol. The LDC will determine the following for each QA/QC inspection:

(a) the Eligibility Criteria were met;
(b) Existing Equipment at the Facility by means of photo evidence;
(c) the Facility Type;
(d) the Participant signed the Work Order and the Participant Agreement;
(e) the Retrofit Measures that were installed in accordance with the Work Order by means of photo evidence;
(f) the invoices submitted by the Contractor to the LDC's in connection with the Work Order accurately set forth the descriptions and quantities of the purchased Retrofit Measures;
(g) the invoices the Contractor submitted to Participant (if applicable);
(h) the Contractor Payment and Participant Contribution was calculated correctly; and
(i) all other requirements of the Work Order and Participant Agreement were complied with.

The Sampling Protocol means the protocol to create a randomly selected sample of Work Orders Such that:

a) The Facilities are geographically spread over the LDC's service area;

b) Each Contractor is represented in the sample;

c) The number of Work Orders sampled in a calendar year, based on an estimate of the number of Work Orders in that calendar year, is (i) sufficient to provide a confidence level that is at least 90% with a margin of error no greater than 10%, assuming a response distribution of 3%; or (ii) equal to 10% of all estimated Work Orders, whichever of (i) or (ii) is less.

2.6.6 *Marketing/sales strategy*

The LDC will have the ability to select a marketing and sales strategy of its choice. The IESO in consultation with the LDCs will assist in the province wide marketing strategy through the central services budget which will not be charged back to the LDCs. This includes such things as the development of a central website, sub-segment case studies, province wide TV and radio ads, social media, billboards, and other tactics that will help create customer and contractor awareness. It also

can include LDC and channel support collateral such as LDC learning guides, channel learning guides, channel brochures, customer brochures and marketing materials channel members can use to help promote other saveONenergy programs while they are prospecting for interested small businesses.

A total of $3M per year is requested from the IESO Central Services budget to help support this marketing strategy.

2.6.7 Participant enrollment strategy

The LDC will have the ability to select a participant enrollment strategy either through a third party contractor, delivery agent, installer, or in-house resources. LDCs are encouraged to collaborate to develop a strategy that is cost effective for their customers and portfolio.

2.6.8 Customer satisfaction plan

The customer satisfaction plan will be up to LDCs discretion.

2.6.9 Timeline to implementation

The redesigned SBL program will be in-market by January 1, 2016.

Item:	March	April	May	June	July	August	September	November	December	January (2016)
Subgroup to Finalize Business Case										
Stakeholder Consultation Sessions										
Vendors/Contractors										
LDC Community (WG & Regional LDC Meetings)										
Finalize Business Case										
Revise Program Elemenes Based on Stakeholder Feedback (if applicable)										
Develop Program Rules, LDC Toolkit										
Submit Final Business Case to CFIC										
Submit Final Business Case to IESO										
LDCs Notified in order to Work on Resourcing for Jan 1, 2016 Start Date										
Launch Date - Subject to IESO Approval										

2.6.10 Opportunities for cost efficiencies

The redesigned SBL program has a lower budget and funding level than the prior program. There are many opportunities to lower program costs including collaboration at the LDC level for marketing, promotions, and delivery costs.

To lower costs at the project level, bulk buying power of measures could significantly assist in cost management and maximizing the $/kWh funding that the customer receives.

ESA audit costs can be reduced by using an installer in the Affiliated Contractor Program (ACP). This program requires only 1 in 25 projects to be audited by the ESA. LDCs and/or IESO may wish to discuss lower permit fees and/or costs with the ESA for projects procured through the SBL program.

LDCs may also wish to RFP the delivery of their program to encourage competitive pricing.

2.6.11 Data collection and storage plan (database and tracking, data retention)

IESO will continue to provide central services related to data collection and retention. It is also recommended that the IESO develop an assessment tool for contractors/delivery agents/installers to input project-level information and calculate the kWh savings per project. In the past and in many similar programs in other jurisdictions, a major variable impacting realization rates is the operating hours of the measures within the participating businesses. It is recommended that this assessment tool be developed with the support of the Business Work Group and be ready for use by January 1st, 2016

2.6.12 Risk associated with program and risk mitigation plan

We have identified the funding level of $.22/kWh as a potential risk to program uptake. The risk is that this rate may be too low to drive the participation rates that are expected. To mitigate this risk, it is recommended that the Business Work Group conduct a bi-annual review and update of the funding rate to ensure it is at a level that drives the expected program participation rates. Stakeholder sessions for implementers and contractors were conducted during the program design. Based on the feedback from these sessions, their incentive for participation will potentially be lower based on the funding rate, however none of them seemed discouraged to participate in the program. They showed willingness to working with LDCs to deliver/participate in the program Section 2.5.1 includes sensitivity analysis on increased funding rate as well as an analysis various participation rate scenarios.

Another risk that we have identified is the base case that has been included in the Measures and Assumptions list for the various types of lighting included. For LED and specialty lighting lamps, the major risk is that the base case will have updated to LED by 2020. Since A Lamps and speciality lighting (if they aren't LED) face a replacement decision every year or every few years, if the market has evolved in 2020 where LEDs are the base case, there is a chance that there will not be any savings accrued towards 2020 LDC targets.

The design group has decided to include LED A lamps and LED specialty lamps in the 2016-2020 SBL Program, with the base case assumed to be a blend of CFL and incandescent lamps. The assessment tool will track the actual equipment that is replaced, and the energy savings financial incentive will be calculated based on the replaced equipment.

In worst case scenario, where the forecasted number of projects and energy savings per project together are only 25% of the forecast, the PAC has -$16.7 million in net benefit over 5 years. This means an average annual potential loss of $3.3 million. If enrolment is far below in the first year, immediate corrective action can be taken to limit any loss. Additionally, it is not expected that there is $9 million plus in fixed costs incurred every year, especially if LDCs are not seeing results from the program so there is margin to still remain cost effective even when the savings are only 25% of forecast.

3 REVISED PROGRAM RULES

1. Program Description

This SMALL BUSINESS LIGHTING Program provides lighting upgrades and incentives to encourage small business owners who are not residential distribution customers (except Recognized Farm Operations) to upgrade existing lighting to more efficient technologies.

The Participants in this SMALL BUSINESS LIGHTING Program are owners and tenants of commercial, institutional, agricultural facilities and multi-family buildings that meet the Eligibility Criteria.

This SMALL BUSINESS LIGHTING Program is offered under, and is subject to the terms of, the Energy Conservation Agreement.

All capitalized terms not defined in these SMALL BUSINESS LIGHTING Program Rules have the definitions given to them in the Energy Conservation Agreement between the Local Distribution Company ("LDC") and the Independent Electricity Systems Operator ("IESO").

2. Program Offer / Participant Incentives

2.1 Standard (Provincially Consistent) Incentives

The program offers Participants a turn-key service which provides:

- lighting Assessment at no charge to the customer;
- up to $2,000 of Eligible Measures provided and installed; and
- Standard Incentive offering for any measures that exceeds $2,000.

Exhibit 1 summarizes the Eligible Measures List offered under the SMALL BUSINESS LIGHTING program

Incentives will be provided based on $0.22/kWh Funding Rate or Measures Cost Cap as per the Eligible Measures List, whichever is less, to a maximum of $2,000 incentive. Standard Incentives are available for additional Eligible Measures greater than $2,000. There are Eligible Measures that will be fully covered by the program and Eligible Measures that will be partially funded by the program.

3. Program Eligibility Criteria

3.1 Participant Eligibility

Participants must:

(a) not be Residential distribution customer or;
(b) be a Recognized Farm Operation;
(c) have all required rights and authority to have the Eligible Measure(s) installed; and
(d) agree to all terms and conditions in the Participant Agreement.

3.2 Facility Eligibility

A Facility:

(a) must be within the LDC's service area;
(b) where the Facility is individually metered by the LDC, the Facility must be the subject of a general service <100kW account
(c) or a Recognized Farm Operation;
(d) where the Facility is not individually metered by the LDC, the average estimated demand of each separate unit connected to that meter over a twelve month period is less than 100kW based on the utility meter data;
(e) where the Facility has not previously participated in the current SMALL BUSINESS LIGHTING program ; and
(f) where the Facility could have been a part of the Direct Install Lighting Initiative (2011-2015) or the Power Savings Blitz (pre 2011).

3.3 Project and Measures Eligibility

3.3.1 Eligible Measures

Exhibit A outlines the Eligible Measures List under this SMALL BUSINESS LIGHTING Program.

The list of Eligible Measures in the program will be reviewed and updated if required twice per year. Any changes to the Eligible Measures List will be based on a review of participant uptake, measure availability, cost and new technologies.

A project must:

(a) be comprised of Eligible Measures;
(b) be based on the Work Order presented to and signed by the Participant; and
(c) be completed by a Contractor in accordance with the electrical safety requirement of the *Electrical Safety Act* (Ontario).

3.4 Eligible Costs

Eligible Costs must:

(a) be the costs of the installed Eligible Measures up to the Measures Cost Cap listed in Exhibit A or lower if reviewed and approved by the LDC in its sole discretion; and
(b) ESA permit fees will be paid according the Eligible Measures List only for projects that require the ESA permit

4. Participant Agreement

The Participant Agreement will include the terms and conditions specified in the Energy Conservation Agreement. Exhibit B is the suggested Participant Agreement.

5. QA/QC and Project M&V – Minimum requirements

Inspections will be conducted annually of Facilities selected for QA/QC inspections in accordance with the Sampling Protocol. The LDC will determine the following for each QA/QC inspection:

(a) the Eligibility Criteria were met;

(b) Existing Equipment at the Facility by means of photo evidence;

(c) the Facility Type;

(d) the Participant signed the Work Order and the Participant Agreement;

(e) the Retrofit Measures that were installed in accordance with the Work Order by means of photo evidence;

(f) the invoices submitted by the Contractor to the LDC's in connection with the Work Order accurately set forth the descriptions and quantities of the purchased Retrofit Measures;

(g) the invoices the Contractor submitted to Participant (if applicable);

(h) the Contractor Payment and Participant Contribution was calculated correctly; and

(i) all other requirements of the Work Order and Participant Agreement were compiled with.

6. Minimum Record Keeping Requirements

6.1 Documentation and Data to be Provided to the IESO by the LDC

The LDC will submit to IESO all required information as set out in the ECA's Data and Reporting Requirement Rules and Settlement Information Requirement Rules:

(a) all data from Work Orders;

(b) data from any invoices provided by the Contractor to the Participant where Participant Contributions are being made;

(c) data from invoices from the Contractor to LDC; and

(d) Data related to QA/QC.

7. Definitions

The following terms have the meaning stated below when used in these Small Business Lighting Program Rules

"Assessment" means a review of the lighting equipment at the Facility of an Eligible Person in order to assess and evaluate appropriate Eligible Measures for such Facility;

"Contractor" means an employee of the LDC or a third party service provider to the LDC who may be hired

"Contractor Payment" means the sum of the Direct Install Eligible Cost Payment and the Standard Incentive Payment

"Direct Install Eligible Cost Payment" means the Direct Install Eligible Cost multiplied by the number of corresponding Eligible Measures for all Eligible Measures installed

"Eligible Person" means an individual that meets the Participant Eligibility criteria in Section 3.1

"Eligibility Criteria" meets both the 3.1 Participant Eligibility criteria and the 3.2 Facility Eligibility criteria

"Eligible Measures" means the removal of Existing Equipment and the installation of any Retrofit Measures listed in the Eligible Measures List;

"Eligible Measures List" means a list of Eligible Measures available under this Initiative and the corresponding Direct Install Eligible Cost and Standard Incentive made available on the IESO Website;

"Existing Equipment" means the equipment listed in the "Existing Equipment" column of the Eligible Measures List;

"Facility" means the building, premises, or part thereof, owned or occupied by the Participant;

"Facility Type" one of the options of archetypes as defined in the Assessment tool

"Funding Rate" means the incentive calculated on $0.22/kWh listed in the "Funding Rate" column

"Measure Cost Cap" means the incentive calculation based on assumed measure costs listed in the "Measure Cost Cap" column in the Eligible Measure List

"Participant Agreement" means either the IESO Form of Participant Agreement, or the LDC Form of Participant Agreement to which the Participant agrees to participate in this initiative;

"Participant" means an Eligible Person who has (i) agreed to the terms and conditions in the Participant Agreement, (ii) satisfied the Eligibility Criteria, and (iii) signed a Work Order;

"Participant Contribution" means the amount payable by the Participant to the Contractor for costs associated with the installation of Eligible Measures in excess of the Contractor Payment amount;

"Recognized Farm Operation" means a farm property that possesses a Farm Business Registration FBR number, being the 6 or 7- digit number that is administered by Agricorp, an agency of the Government of Ontario, and housed by Agricorp., the Ontario Ministry of Food, Agriculture and Rural Affairs, Municipal Property Assessments Corporation and the municipalities;

"Retrofit Measures" means the measures listed in the column entitled "Retrofit Measures" on the Eligible Measures List;

"Sampling Protocol" means the protocol to create a randomly selected sample of Work Orders Such that:

d) The Facilities are geographically spread over the LDC's service area;

e) Each Contractor is represented in the sample;

f) The number of Work Orders sampled in a calendar year, based on an estimate of the number of Work Orders in that calendar year, is (i) sufficient to provide a confidence level that is at least 90% with a margin of error no greater than 10%, assuming a response distribution of 3%; or (ii) equal to 10% of all estimated Work Orders, whichever of (i) or (ii) is less.

"Standard Inventive" means the incentive amount listed in the column titled "Standard Incentives" in the Eligible Measures List;

"Standard Incentive Payment" means the Standard Incentive multiplied by the number of corresponding Eligible Measures for all Eligible Measures installed;

"Work Order" means the completed work order form in the form made available by the IESO.

APPENDIX A: HISTORIC PROGRAM ANALYSIS

8. Results

Since program launch in 2008 (pilot), the SBL and predecessor programs have had declining overall incremental savings. The number of projects peaked in the first year of full program delivery and has been decreasing since. However, the savings per project has increased year over year. Cost effectiveness information is unavailable for the 2011 to 2014 period, however, the IESO has indicated that the cost effectiveness has declined and the program is no longer cost effective.

Table 16: Past program results

Project/Program Metrics	2008	2009	2010	2011	2012	2013	2014
Incremental Energy Savings (MWh)		186,000	138,000	66,000	61,000	64,316	60,890
# of Projects	22,884	65,214	48,364	20,325	18,494	17,782	16,669
Aggregate MWh/Project		2.85	2.85	3.25	3.30	3.62	3.66
TRC	0.96	2.30	2.01	N/A	N/A	N/A	N/A
LUEC	0.09	0.06	0.06	N/A	N/A	N/A	N/A

LEDs were recently introduced to the program and have largely replaced CFLs in the program. Figure 13 illustrates this finding.

Figure 13: Measure count breakdown

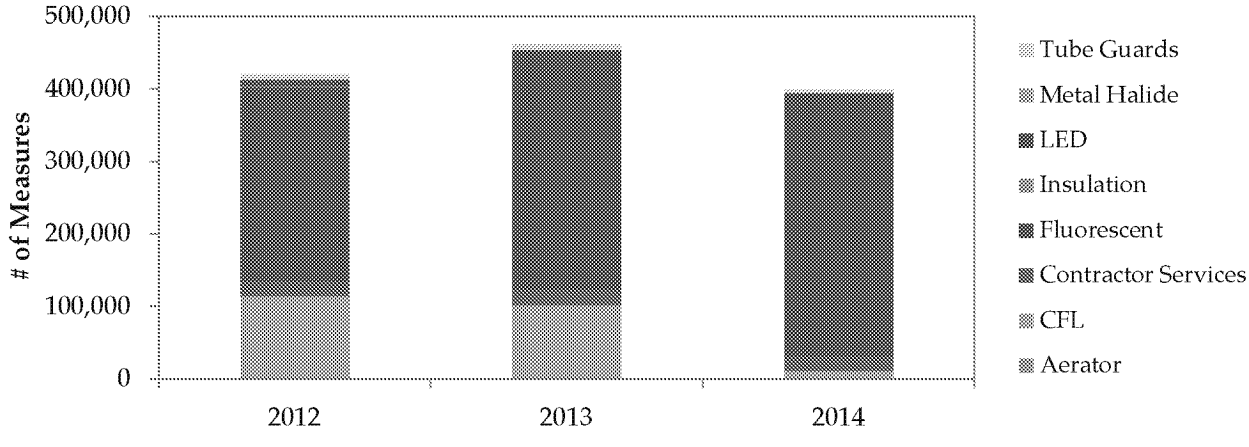
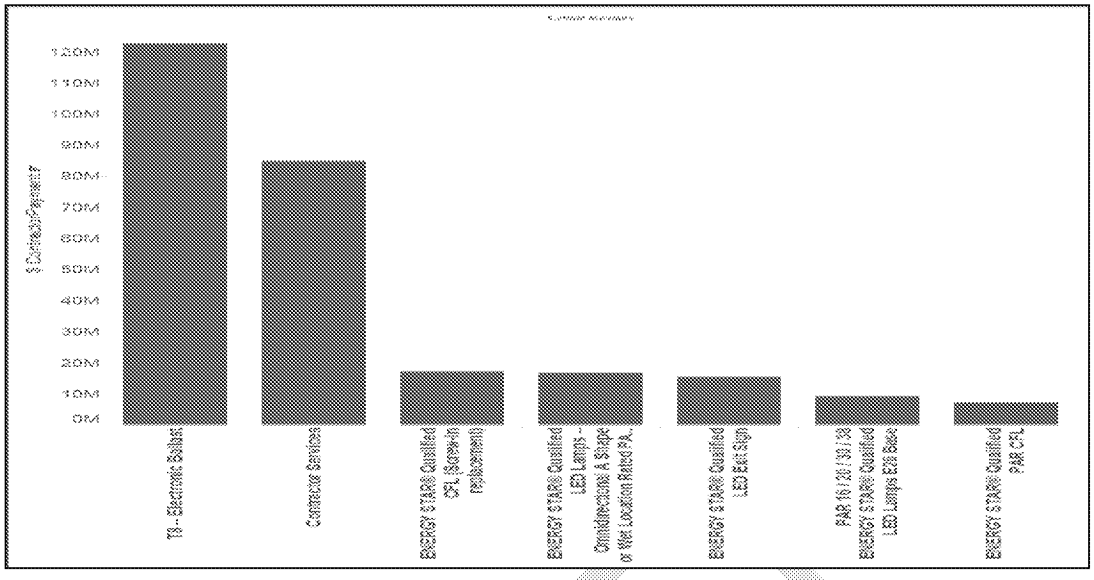


Figure 14 investigates the dollar value of the measures installed during the full program period (from 2008 to 2014). The largest categories were T8s and "contractor services."

Figure 14: Dollar value of measures installed



"Contractor Services" is intended to cover non-measure costs such as ESA permit and audit costs, lift rental costs, and other costs required to complete a lighting project. A further breakdown of "Contractor Services" is provided in Figure 15, below.

Figure 15: Breakdown of "Contractor Services"

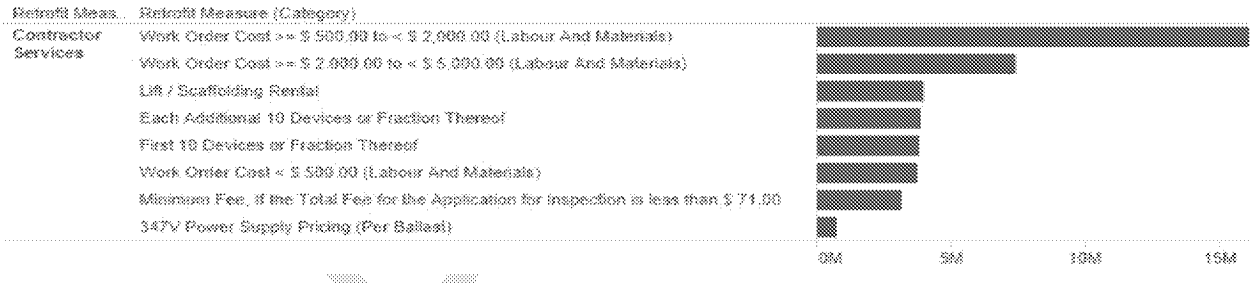
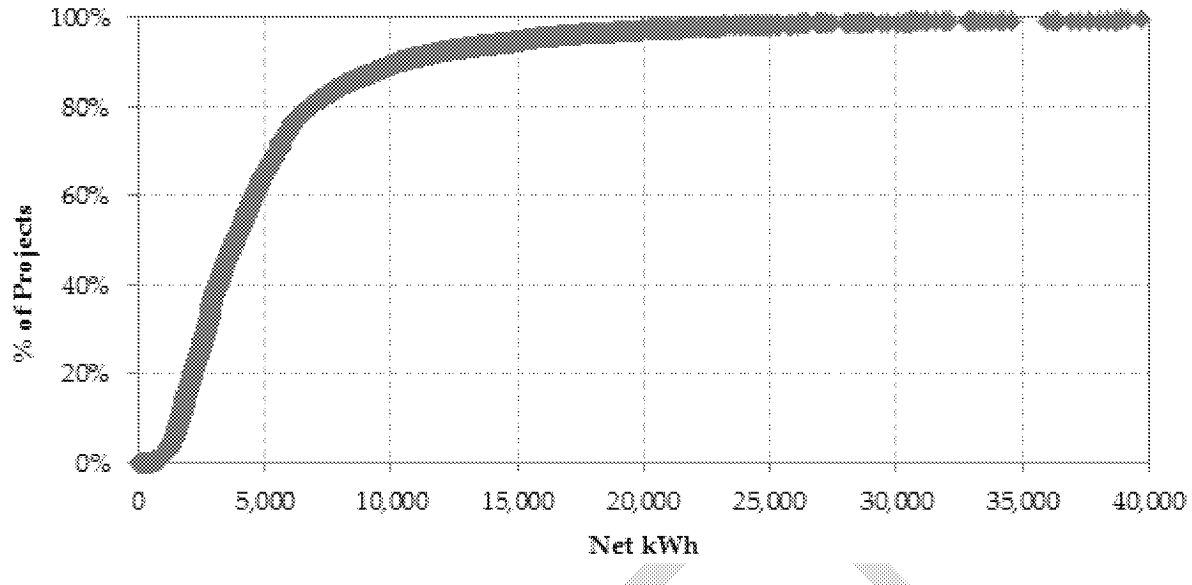


Figure 16 shows the individual project size over the life of the SBL program and its predecessor programs. This illustrates that 60 percent of projects over the life of the program have achieved less than 5,000 kWh.

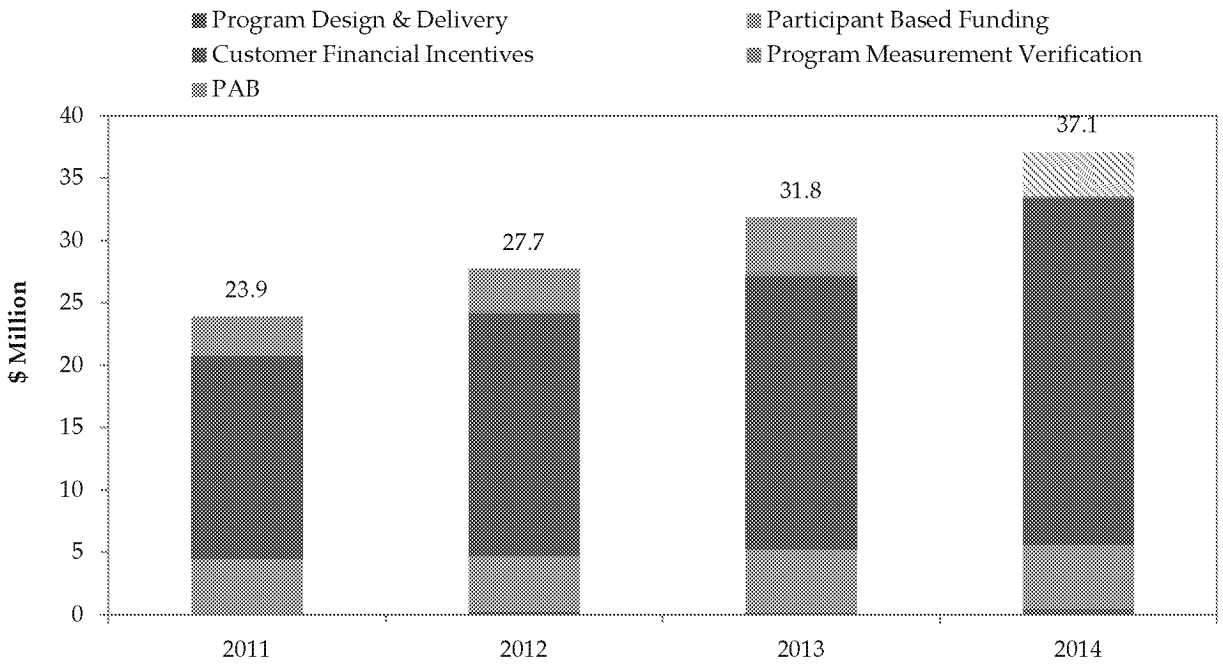
Figure 16: Duration Curve of Project Size



8.1 Costs

During the 2011 to 2014 framework period, the cost breakdown has remained consistent. As expected, customer financial incentive is the largest cost component at 70 to 75 percent of total costs. The second largest component of the program is the participant based funding. In the 2011 to 2014 program, contractors received a flat fee of $275 per project. However, a flat fee per project creates an incentive to get a higher volume of projects as opposed to deeper savings per project. This cost component is removed in the re-designed program. Instead, contractors/delivery agents must manage their projects within a $/kWh budget.

Figure 17: Historic SBL Cost Breakdown



APPENDIX B: BEST PRACTICE REVIEW

Most jurisdictions that run energy efficiency programs for businesses have a program similar to SBL. A scan of this type of program in other jurisdictions was completed. The scan indicates that most programs are open to larger general service customers and either do not have incentive caps or structure their funding such that a certain percentage of measure costs are covered. Table 17 and Table 18 outline ten similar small commercial direct install programs in other jurisdictions in North America specifying the eligible customer size, incentive levels and eligible measure categories.

It's important to note that comparing programs is not a perfect science. Program rules, market characteristics and demographics, expenses, and retrofit measures vary greatly between jurisdictions making it near impossible to make 'apples-to-apples' comparisons.

Table 17: Scan of Similar Programs - Eligibility

State	Utility	Eligibility
Rhode Island	National Grid	Avg. < 200kW/Month
Massachusetts	National Grid	Avg. < 300kW/Month
California	SCE	Peak < 100kW/Month
	SDG&E	Peak < 100kW/Month
New York	ConEdison	Peak < 100kW/Year
	National Grid	Avg. < 100kW/Month
	PSE&G	Avg. < 200kW/Month *
Connecticut	Connecticut Light and Power	Avg. 10-200kW/year
Nova Scotia	Efficiency Nova Scotia	<350 MWh/year

* Higher kW/kWh thresholds are considered on a case by case basis

Table 18: Scan of Similar Programs - Incentives and Measures

State	Utility	Incentive	Financing Available	Lighting	Refrigeration	HVAC	Controls	Sensors	Other*
Rhode Island	National Grid	up to 70%	30%	•	•		•	•	•
Massachusetts	National Grid	up to 70%	No	•	•		•	•	•
California	SCE	100%	N/A	•	•		•	•	•
	SDG&E	100%	N/A	•	•			•	
New York	ConEdison	up to 70%	No						•
	National Grid	up to 70%	30%	•	•			•	
	PSE&G	80%	20%	•	•				•
Connecticut	Connecticut Light and Power	up to 50%*	50%	•	•		•	•	•
Nova Scotia	Efficiency Nova Scotia	up to 60%	40%	•		•		•	•

* Includes: aerators, air compressors, custom, heat pumps, insulation, misc., misc. appliances, motors, pipe insulation, pumps, showerheads, vending machines, water heaters

Table 19: Direct Install Project Expenditures in Other Jurisdictions

Utility	Program Name	Program Type	Average Expenditure/ Project
National Grid	Massachusetts Small Business Direct Install	Comprehensive DI	$4878
Connecticut Light and Power	Small Business Energy Advantage	Comprehensive DI	$7930
Public Service of New Hampshire	Small Business Energy Solutions	Comprehensive DI	$4890
PG&E	RightLights Program	Comprehensive DI	$6000
Southern California Edison	Existing Buildings Direct install	Comprehensive DI	$1813

Ontario Power Authority	Small Business Lighting Incentive Initiative	Basic DI	$926
BGE	Basic Direct Install	Basic DI	$4384
APS	Solutions for Business Program: Express Solutions	Rebate program w DI Option	$6136
Fortis BC	LiveSmart BC Lighting Installation Program	Basic DI	$3748

Source: Esource Insights from the E Source 2013 Small Business Direct-Install Benchmark Study

Different jurisdictions assess eligibility in different ways, but most programs are open to larger business customers. Only one of the programs in the scan had a cap on incentives. Most programs include lighting, refrigeration, sensors and a selection of other measures. Only two of the jurisdictions scanned include heating, ventilation, and air conditioning (HVAC) measures in their direct install programs.

It was noted that many programs incenting 70% of project costs have a larger average project size, which is enabled by participants' contributions. There is an argument to support a change in incentives to cover only a portion of project costs.

However, there is concern surrounding how participation would be impacted if asked to contribute towards up-front costs. As highlighted by the SBL 2012 evaluation, up-front costs are the most significant barrier for small businesses, with 45% of those surveyed indicating affordability deterred them from contributing towards utility energy efficiency programs.[4]

The following tables highlight the design and results of additional small business programs in other jurisdictions. In particular, the scans below outline alternate, pay-for-performance structures for the small business segment and go into more detail of traditional small business programs similar to SBL.

Table 20: AEP Ohio Business Express Program

Item	Description
Name	Business Express Program
Jurisdiction	AEP Ohio

[4] Page 59, Final Report Ontario Power Authority 2012 Small Business Lighting Process and Impact Evaluation. September 30, 2013. Research Into Action, Inc., Nexant Planning and Evaluation, Itron, Inc., Harris Decima. http://powerauthority.on.ca/sites/default/files/conservation/2012-Small-Business-Lighting-Evaluation.pdf

Item	Description
High level description	The Express Program provides one-stop turn-key services to small businesses for lighting upgrades. To address market barriers the Express Program has higher equipment incentives than other business offerings. The Express Program is marketed, administered, and delivered as a single program by AEP Ohio. The program is managed by an implementation contractor in coordination with AEP Ohio. Program model that focuses on an integrated delivery of audit services, measure installation and application handling. The savings algorithms have changed from a prescriptive deemed savings approach in prior years to a more custom approach, taking into account fixture-specific parameters relevant for lighting equipment such as hours of use.
Incentive structure	Project incentives cannot exceed 80 percent of the total project cost. AEP Ohio directly pays the implementation contractor the incentive amount and the customer receives an invoice for their portion of the project cost directly from the implementation contractor. Twelve month interest-free financing is available to certain customers, although there is a discount of 6 percent applied for customers for paying in full upon project completion.
Total Incentives	$2,489,462; Participant contribution to incremental costs $4,019,633
Total Program costs	Third party implementation costs 307,567; AEP Admin costs 339,761
Approx. savings per project	11,280 kWh decreased from 16,264 kWh in 2012 (average energy use per project is 58,879 kWh, down from 65,900 kWh in 2012)
Total Projects	930
Total savings	10,490 MWh ex ante (lighting measures, with T8 retrofits representing the majority of installed measures; LEDs are 14 percent of energy savings) 6,062 MWh ex post Measure life = 11 years
Eligible measures	Approved equipment includes indoor and outdoor lighting retrofits, occupancy sensors. To date, however, only lighting measures have been completed through the program. Projects must result in a reduction of energy usage at the project level, which allows the implementation contractor flexibility to bundle less efficient measures with more efficient measures to increase sales and reach more customers.
Customer eligibility requirements	AEP Ohio business customers with annual energy consumption below 200,000 kWh and less than seven accounts in that business name can participate in the Express Program. In addition to the annual consumption restriction, participants must be AEP Ohio customers and cannot be mercantile or managed national account customers. These other criteria presume that these other customer groups have adequate access to capital and energy efficiency expertise and support at the corporate level.
Delivery structure	The Express Program is marketed, administered, and delivered as a single program by AEP Ohio. The program is managed by an implementation contractor in coordination with AEP Ohio.
Support/enabling activities	Customer audit included for free

Item	Description
Outreach/marketing/ approach to customers	Program marketed to small businesses by the implementer's phone bank that make appointments for program auditors to visit the customer to conduct the free energy assessment. Program auditors also market the program directly to customers in assigned geographic territories. They are able to target certain customer types such as auto repair or small grocery stores. Word of mouth is becoming another important way for customers to find out about the program.
Changes/adjustments to the program over time	New implementation contractor
Other	The small retail and auto repair segments have a majority of the proposals and energy savings; warehouse and assembly have the largest energy savings per site; Replacing T12s TRC = 0.9; PAC = 1.3

Table 21: Duke Energy Progress Small Business Energy Saver Program

Item	Description
Name	Small Business Energy Saver Program
Jurisdiction	Duke Energy Progress
High level description	specifically to small business customers, offering a performance-based incentive up to 80 percent of the total project cost, inclusive of both materials and installation, on high-efficiency lighting; refrigeration; and heating, ventilation, and air conditioning (HVAC) equipment.
Years in market	began as a pilot in early 2013 in South Carolina before expanding into the remainder of the DEP service territory by mid-year
Incentive structures	Program offers incentives in the form of a discount for the installation of measures, including high-efficiency lighting; refrigeration; and heating, ventilation, and air conditioning (HVAC) equipment. In PY 2013, the Implementation Contractor (IC) focused exclusively on lighting measures, which tend to be the most cost-effective and easiest to market to potential participants. The program offers a performance-based incentive up to 80 percent of the total project cost, inclusive of both materials and installation. Incentives are based on a fixed dollar amount per kilowatt-hour (kWh) of energy savings - $0.28/kWh, subject to an 80 percent cap on the total project cost. Multiple factors drive the total project cost, including selection of equipment and unique installation requirements.
Approx. savings per project	21,100 kWh
Total Projects	675
Total savings	11,500 MWh
Eligible measures	Efficient T8 lighting retrofits were the highest contributor to program energy savings (75 percent), followed by light-emitting diode (LED) lighting measures (15 percent). In addition, T5 lighting, compact fluorescent lamps (CFLs), and de-lamping also contributed to savings; efficient interior, exterior, and exit sign lighting, as well as refrigeration and HVAC equipment.

Item	Description
Customer eligibility requirements	DEP commercial customers with less than 100 kilowatts (kW) demand service
Delivery structure: contractor incentives, roles and responsibilities, selection	A third-party contractor administers the SBES program on DEP's behalf. The IC handles all aspects of the program, including customer recruitment, facility assessments, equipment installation (through independent installers contracted by the IC), and payment and incentive processing.
Other	Suggested Improvements: Use a business segment-targeted approach to marketing, in addition to targeting by location, by demonstrating success with other similar businesses and tailoring measure packages for certain groups (e.g., auto body). Recruit and train a network of installers for refrigeration and HVAC measures, in addition to targeted marketing of benefits for non-lighting measures.

Table 22: Massachusetts Small Business Program

Item	Description
Name	Small Business Program
Jurisdiction	Massachusetts
High level description	Offers free energy audit to identify energy saving opportunities. It also pays up to 70 percent of the total cost for retrofitting qualifying equipment such as lighting, motors, refrigeration and refrigeration controls. This program provides cost-effective, turnkey, energy-saving products and services for small business customers with no up-front customer cost. The program also offers a zero-percent financing option. The C&I Small Retrofit Program is cost-effective with a BCR of 3.22.
Approx. incentive per project	Incentives (retrofits) VSDs: $600-$3550 AC/Heat Pumps: $30-$150/ton HVAC Controls and Motors: $150-$250/control Chillers: Contact NSTAR Compressed Air: $100 – $200/HP ($2.75/gallon of storage)
Incentive structures	Program Administrators will pay up to 70%- 80% of installation and equipment costs
Total Incentives	$823,721 in customer incentives, were paid in January 2012.
Total Projects	A total of 123 projects completed in late December 2011

Item	Description
Total savings	C&I Small Retrofit TRC Benefits $ 65,302,225 46,837,926 -28% TRC Costs $ 22,872,540 14,553,811 -36% Net Benefits $ 42,429,685 32,284,114 -24% BCR n/a 2.86 3.22 13% P.569 savings for each measure (https://www.nationalgridus.com/non_html/eer/ma/11_MA_E_EEAR_Pt_1.pdf)
Eligible measures	High Efficiency Spray Valves Pipe Insulation Walk-in cooler/refrigeration controls upgrades Programmable Thermostats Site-specific custom projects Aerators Showerheads Boiler reset control
Customer eligibility requirements	For smaller business customers whose average monthly demand is 300 kW or less
Delivery structure	This program is available to businesses in Massachusetts that are customers of these Program Administrators: Berkshire Gas, Cape Light Compact, Columbia Gas of Massachusetts, Eversource, National Grid, Liberty Utilities, Unitil The customers need to contact the Program Administrator directly to see if eligible under the Direct Install Program.
Other	http://www.masssave.com/business/incentive-programs/small-business-energy-efficiency-program http://massmec.com/energy-services/incentives/ https://www.nationalgridus.com/non_html/eer/ma/11_MA_E_EEAR_Pt_1.pdf

Table 23: Rhode Island EnergyWise Program

Item	Description
Name	National Grid (Electric) – Small Business Energy Efficiency Program - EnergyWise program
Jurisdiction	Rhode Island
Incentive structures	If the business customer chooses to make the recommended improvements using National Grid's vendor and equipment, National Grid will pay 70% of the cost of the installation of energy efficient equipment. The remaining 30% can be paid through the customer's electric bill, at 0% interest over a maximum period of 24 months. Customers paying the 30% customer share in a single lump sum are provided a 15% discount.
Eligible measures	Commercial Refrigeration Equipment, Walk-in Cooler efficiency measures

Item	Description
Customer eligibility requirements	To be eligible, businesses must have an average monthly demand of 200 kW or less.
Sources	http://dsireusa.org/incentives/incentive.cfm?Incentive_Code=RI23F&re=0&ee=0 http://www.nationalgridus.com/non_html/eer/ri/2013%20EEPP%20Final%20w%20Rev%20Att%205%2020121204.pdf

Table 24: Connecticut Light & Power Small Business Energy Advantage

Item	Description
Name	Small Business Energy Advantage (SBEA)
Jurisdiction	Connecticut
High level description	Administered through several prime contractors acting as single points of contact for customers; cost effective measures; turnkey contractors fill out all paperwork, CL&P reimburses contractors for incentive cost.
Incentive structures	Incentives up to 50 percent of the installed cost Zero-interest and low-cost financing; 2 year payback limit; custom incentives for up to 50% of retrofit lighting costs (35 – 40% when considering full installed cost) up to 100% of non-lighting measures
Total Incentives	2007 $9.6 million
Approx. savings per project	Approx. $5,600 range from $4,000 - $10,000
Total Projects	2011 1,696 projects 2007 1,752 projects
Total savings (2011)	2007: 42.5 GWh majority were lighting upgrades (other were lighting controls, refrigeration upgrades and one air compressor upgrade) 2011: Total savings for the program: 35.2 GWh Refrigeration accounts for 8.1% of program savings; lighting accounts for 79.6% of program savings; high performance lighting accounts for 7.2% of savings; HVAC accounts for 2.1% of program savings

Item	Description
Eligible measures	Heating/ventilation/air conditioning Energy-efficient equipment upgrades Programmable thermostats Energy management systems Refrigeration Anti-condensation door heater controls Evaporator fan controls Night covers Electronically commutated motors Energy-efficient kitchen equipment Natural gas-saving equipment Spray nozzles Showerheads Aerators Programmable thermostats Pipe and duct insulation Energy management systems Indoor boiler reset controls Heating equipment Water heating equipment Kitchen equipment Infrared space heaters Envelope measures Other improvements Air compressors Variable frequency drives Premium-efficiency motors Custom measures
Customer eligibility requirements	Commercial and industrial CL&P and UI customers with annual demand <100 kW
Delivery structure	Contractor is point of contact with customer and performs all tasks
Outreach/marketing/ approach to customers	Customers must contact one of the Small Business Energy Advantage (SBEA) program-authorized contractors listed on the utility's website
Other	http://www.energizect.com/businesses/programs/Small-Business-Energy-Advantage http://www.neep.org/sites/default/files/resources/SBEA%20Impact%20Final%20Report.pdf

Table 25: SMUD Complete Energy Solutions

Item	Description
Name	Complete Energy Solutions
Jurisdiction	Sacramento Municipal Utility District (SMUD)

Item	Description
Description	Identifies energy opportunities through a no cost facility audit (lighting, HVAC, refrigeration), install measures through a certified contractor, incentives cover an average of 73 percent of project costs
Incentive Structure	Up to 80 percent of project costs, average 73 percent. Customer can choose to pay the trade contractor the entire amount at the time of service and have the rebate sent directly OR can elect to have the rebate sent directly to the contractor so customer only pays the co-pay balance.
Eligible Measures	Lighting: Linear Fluorescents, CFL, LED, Hi Bay, Exit Signs, Exterior Lighting, Lighting Controls, Refrigeration Case Lighting, and more. HVAC: Programmable Thermostats, Package Unit Tune-Ups, Refrigerant Charge, Duct Test & Seal, Economizer Adjustment, Window Film, and more. Food Service: Oven, Fryer, Griddle, Steamer, and Insulated Holding Cabinet Replacement. Refrigeration: Anti-Sweat Heater Controls, Evaporator Fan ECM for Display Case Cooler/Freezer/Walk-in, Evaporator Fan Controls, Auto Door Closers, Night Covers, Strip Curtains, and Vending Machine Controllers. Water Heating: Low Flow Showerheads, Faucet Aerators, High Efficiency Water Heaters, Water Heater Thermostat Setback. Motors: Standard Efficiency to Premium Efficiency Electric Motor Replacement. Other: Single Speed to Two-Speed or Variable Speed Electric Motors and Pool Pumps, Network Desktop Computer Power Management Software.
Costs	Planning & Setup $162,500 (5%) Tracking & Reporting $129,700 (4%) Customer Incentives $1,813,802 (54%) Performance Incentive $1,239,399 (37%)
Energy savings by measure type	Refrigeration 5,351,668 (50%) Lighting 5,002,870 (47%) LED 2,333,499 (22%) Linear Fluorescent 1,059,110 (10%) Other 835,614 (8%) HID 340,790 (3%) Signs 195,765 (2%) Controls 136,308 (1%) Exterior 69,368 (1%) CFL 32,417 (<1%) HVAC 297,044 (3%)
Other	https://www.smud.org/en/business/save-energy/energy-management-solutions/complete-energy-solutions.htm

APPENDIX C: IESO COST EFFECTIVENESS TOOL AND ELIGIBLE MEASURES LIST

Accompanying files contain the eligible measures list and the IESO Cost Effectiveness Tool that includes the assumptions for the redesigned SBL program and the detailed cost effectiveness calculations and results at the archetype level.

APPENDIX D: PROGRAM LOGIC MODEL