



Evaluation of 2020 Conservation First Framework Business Programs

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Foreword

The following Addendum to the Evaluation of 2020 Business Programs Report is intended for anyone interested in the performance of the business sector conservation and demand management programs offered in Ontario during calendar year 2020 under the Conservation First Framework.

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List of Acronyms

BRI	= Business Refrigeration Incentive Program
CDM	= Conservation Demand Management
CFF	= Conservation First Framework
EBCx	= Existing Building Commissioning Program
FCR	= Full Cost Recovery
FR	= Free ridership
GWh	= Gigawatt-hour
HP	= Horsepower
HPNC	= High Performance New Construction Program
HVAC	= Heating, ventilation, and air conditioning
kW	= Kilowatt
kWh	= Kilowatt-hour
IESO	= Independent Electricity System Operator
LDC	= Local Distribution Company
LUEC	= Levelized Unit Energy Cost
MW	= Megawatt
MWh	= Megawatt-hour
NTG	= Net-to-gross
NTGR	= Net-to-gross ratio
P4P	= Pay for Performance
PAC	= Program administrator cost
SBL	= Small Business Lighting Program
SO	= Spillover
TRC	= Total resource cost
VFD	= Variable frequency drive

1 Executive Summary

The Independent Electricity System Operator (IESO) retained Nexant, Inc., to conduct a simplified evaluation approach of its business energy conservation programs for Program Year 2020 (PY 2020) as part of an orderly and cost effective wind down of the Conservation First Framework¹. The evaluation team also includes NMR Group, Inc.

1.1 Evaluation Goals and Objectives

The following are goals and objectives of the 2020 evaluation of the Business Programs:

- Determine net adjusted results based on a simplified evaluation approach of the following province-wide Save on Energy Programs: Retrofit Full Cost Recovery, Retrofit Pay for Performance, Audit Funding, High Performance New Construction, and Existing Building Commissioning Programs
- Determine net adjusted results based on a simplified evaluation approach of the OPsaver local program

A summary of the net adjusted results presented and discussed in Section 2.

1.2 Business Program Results

The total 2020 first-year net adjusted energy and summer peak demand savings across all business programs was 179.2 GWh and 16.8 MW, respectively. The contribution of each program to the net adjusted energy savings is presented in Table 1-1.

Table 1-1: 2020 Program and Portfolio Savings

Program Availability	Program	Net Energy Savings (GWh)	Net Summer Demand Savings (MW)
Province Wide	Retrofit FCR	94.4	4.93
	Retrofit P4P	63.4	9.58
	High Performance New Construction (HPNC)	5.0	2.3
	Audit Funding	0.1	0.01
	Existing Building Commissioning (EBCx)	0.1	0.04
	Province Wide Program Savings	162.9	16.8
Regional and Local	OPsaver	16.2	0.0
All Programs		179.2	16.8

¹ The Conservation First Framework (CFF) was discontinued last March 21, 2019 (<http://ieso.ca/Sector-Participants/Conservation-Delivery-and-Tools/Interim-Framework>).

2 Impact Results

2.1 Retrofit Full Cost Recovery

The Retrofit Program provides incentives to businesses in the industrial, commercial, institutional and multi-family residential sectors for the purchase and operation of energy efficient equipment. Incentives are based on a per unit basis for the prescriptive track and on a per-kWh or per-kW basis for custom track measures. LDCs are provided the option of two payment methods to re-coup costs associated with the program; Full Cost Recovery (FCR) or Pay for Performance (P4P). Nearly all LDCs choose the Retrofit FCR Program and receive set incentive levels based on the type of equipment installed (prescriptive track) during a project or the reported energy savings (custom track) estimated on the project application.

2.1.1 Retrofit Impact Results

Table 2-1 presents the province-wide results of the 2020 Retrofit Full Cost Recovery (FCR) Program impact evaluation.

Table 2-1: 2020 Retrofit FCR Program Impact Results

Measurement	Project Count	Reported Savings	Realization Rate	Gross Adjusted Savings	Net-to-Gross Ratio	Net Savings	Lifetime Net Savings	Net Savings at 2020
Energy (GWh)	509	117.5	98.4%	115.7	81.6%	94.4	1,139.2	94.4
Summer Peak Demand (MW)		6.3	93.4%	5.9	84.0%	4.9	N/A	4.9

Table 2-2 presents the first year net verified results comparison of the Retrofit FCR program for the period of 2015-2020.

Table 2-2: Retrofit FCR Net Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
Projects	16,292	14,285	13,082	12,211	5,211	509	61,590
1st Year Savings							
Net Energy (GWh)	843.5	741.7	878.1	617.5	338.0	94.4	3,513.3
Net Summer Peak Demand (MW)	120.3	101.0	136.1	82.4	47.1	4.9	491.7
2020 Savings							
Net Energy (GWh)	843.1	744.8	888.4	615.2	336.8	94.4	3,522.5
Net Summer Peak Demand (MW)	120.2	102.2	139.6	82.5	47.2	4.9	496.7

2.1.2 Retrofit FCR Cost Effectiveness Results

Table 2-3 presents the province-wide cost effectiveness results of the 2020 Retrofit Full Cost Recovery (FCR) program.

Table 2-3: 2020 Retrofit FCR Program Cost Effectiveness Results

Total Resource Cost (TRC)	
TRC Costs (\$)	\$53,371,704
TRC Benefits (\$)	\$65,500,070
TRC Net Benefits (\$)	\$12,128,366
TRC Net Benefit (Ratio)	1.23
Program Administrator Cost (PAC)	
PAC Costs (\$)	\$21,759,951
PAC Benefits (\$)	\$60,930,511
PAC Net Benefits (\$)	\$39,170,560
PAC Net Benefit (Ratio)	2.80
Levelized Unit Energy Cost (LUEC)	
\$/kWh	\$0.028
\$/kW	\$212.7

Table 2-4 presents the cost effectiveness results comparison of the Retrofit FCR program for the period of 2015-2020.

Table 2-4: Retrofit FCR Cost Effectiveness Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
TRC Net Benefit (Ratio)	0.97	1.05	1.24	1.10	1.19	1.23	1.12
PAC Net Benefit (Ratio)	2.32	3.34	3.74	3.56	3.79	2.80	3.46
LUEC (\$/kWh)	0.03	0.02	0.02	0.02	0.02	0.03	0.02

2.2 Retrofit Pay for Performance

The Retrofit P4P Program, offered by Alectra Utilities, provided incentives for equipment installed at industrial, commercial, institutional, and residential multi-family sectors. Under the P4P payment mechanism the utility is reimbursed based on the net-verified energy savings evaluated quarterly instead of a set payment dependent on equipment installed or savings reported.

2.2.1 Retrofit Pay for Performance Impact Results

Table 2-5 presents the results of the 2020 Retrofit P4P Program impact evaluation.

Table 2-5: 2020 Retrofit P4P Program Impact Results

Measurement	Project Count	Reported Savings	Realization Rate	Gross Adjusted Savings	Net-to-Gross Ratio	Net Savings	Lifetime Net Savings	Net Savings at 2020
Energy (GWh)	640	78.4	106.4%	83.4	75.9%	63.4	824.2	63.4
Summer Peak Demand (MW)		9.7	126.7%	12.3	78.0%	9.6	N/A	9.6

Table 2-6 presents the first year net verified results comparison of the Retrofit P4P program.

Table 2-6: Retrofit P4P Net Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
Projects	130	1,127	865	2,215	2,921	640	7,898
1st Year Savings							
Net Energy (GWh)	1.8	59.4	75.7	130.1	250.3	63.4	580.8
Net Summer Peak Demand (MW)	0.3	7.1	12.1	20.7	36.1	9.6	86.0
2020 Savings							
Net Energy (GWh)	1.8	59.5	75.7	130.1	250.3	63.4	580.8
Net Summer Peak Demand (MW)	0.3	7.1	12.1	20.7	36.1	9.6	86.0

2.2.2 Retrofit P4P Cost Effectiveness Results

Table 2-7 presents the province-wide cost effectiveness results of the 2020 Retrofit Full Cost Recovery (FCR) program.

Table 2-7: 2020 Retrofit P4P Program Cost Effectiveness Results

Total Resource Cost (TRC)	
TRC Costs (\$)	\$36,490,858
TRC Benefits (\$)	\$51,324,338
TRC Net Benefits (\$)	\$14,833,480
TRC Net Benefit (Ratio)	1.41
Program Administrator Cost (PAC)	
PAC Costs (\$)	\$16,300,873
PAC Benefits (\$)	\$48,075,978
PAC Net Benefits (\$)	\$31,775,105
PAC Net Benefit (Ratio)	2.95
Levelized Unit Energy Cost (LUEC)	
\$/kWh	\$0.03
\$/kW	\$180.8

Table 2-8 presents the cost effectiveness results comparison of the Retrofit P4P program for the period of 2015-2020.

Table 2-8: Retrofit P4P Cost Effectiveness Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
TRC Net Benefit (Ratio)	1.57	0.98	1.95	1.82	4.42	1.41	1.95
PAC Net Benefit (Ratio)	2.52	2.48	11.97	3.16	9.87	2.95	4.52
LUEC (\$/kWh)	0.03	0.03	0.01	0.02	0.01	0.03	0.02

2.3 High Performance New Construction

The High Performance New Construction (HPNC) Program provides design assistance and incentives for building owners and planners who design and implement energy efficient equipment within commercial, institutional, industrial, or multi-residential occupancy new construction or major renovation projects. Incentives are offered for measures or designs that exceed the current Ontario Building Code requirements.

2.3.1 HPNC Impact Results

Table 2-9 presents the province-wide results of the 2020 HPNC Program impact evaluation.

Table 2-9: 2019 HPNC Program Impact Results

Measurement	Project Count	Reported Savings	Realization Rate	Gross Adjusted Savings	Net-to-Gross Ratio	Net Savings	Lifetime Net Savings	Net Savings at 2020
Energy (GWh)	44	7.9	108.0%	8.5	58.0%	5.0	104.0	5.0
Summer Peak Demand (MW)		2.0	104.0%	2.1	108.0%	2.3	N/A	2.3

Table 2-10 presents the first year net verified results comparison of the HPNC program.

Table 2-10: HPNC Net Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
Projects	331	282	303	356	207	44	1,523
1st Year Savings							
Net Energy (GWh)	50.9	32.7	55.3	63.2	26.0	5.0	233.0
Net Summer Peak Demand (MW)	12.8	9.3	10.3	23.1	11.2	2.3	69.0
2020 Savings							
Net Energy (GWh)	50.6	32.7	55.3	63.2	26.0	5.0	232.8
Net Summer Peak Demand (MW)	12.7	9.3	10.3	23.1	11.2	2.3	68.9

2.3.2 HPNC Cost Effectiveness Results

Table 2-11 presents the province-wide cost effectiveness results of the 2020 HPNC program.

Table 2-11: 2020 HPNC Program Cost Effectiveness Results

Total Resource Cost (TRC)	
TRC Costs (\$)	\$36,649,460
TRC Benefits (\$)	\$8,831,197
TRC Net Benefits (\$)	(\$27,818,263)
TRC Net Benefit (Ratio)	0.24
Program Administrator Cost (PAC)	
PAC Costs (\$)	\$3,070,852
PAC Benefits (\$)	\$7,679,301
PAC Net Benefits (\$)	\$4,608,450
PAC Net Benefit (Ratio)	2.50
Levelized Unit Energy Cost (LUEC)	
\$/kWh	\$0.05
\$/kW	\$138.0

Table 2-12 presents the cost effectiveness results comparison of the HPNC program for the period of 2015-2020.

Table 2-12: HPNC Cost Effectiveness Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
TRC Net Benefit (Ratio)	0.10	1.22	0.94	0.31	0.35	0.24	0.43
PAC Net Benefit (Ratio)	3.72	3.97	3.94	7.04	5.17	2.50	4.90
LUEC (\$/kWh)	0.02	0.03	0.02	0.02	0.02	0.05	0.02

2.4 Audit Funding

The Audit Funding Program provides funding of up to half of the cost of certain energy audits that are undertaken to identify opportunities to reduce electricity consumption at industrial, commercial, institutional, and multi-family residential buildings; this program also acts as a feeder for the Retrofit Program.

2.4.1 Audit Funding Impact Results

Table 2-13 presents the province-wide results of the 2020 Audit Funding Program impact evaluation.

Table 2-13: 2020 Audit Funding Program Impact Results

Measurement	Project Count	Reported Savings	Realization Rate	Gross Adjusted Savings	Net-to-Gross Ratio	Net Savings	Lifetime Net Savings	Net Savings at 2020
Energy (GWh)	3	0.2	100.0%	0.2	90.0%	0.1	1.3	0.1
Summer Peak Demand (MW)		0.01	100.0%	0.01	87.0%	0.01	N/A	0.01

Table 2-14 presents the first year net verified results comparison of the Audit Funding program.

Table 2-14: Audit Funding Net Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
Projects	590	499	717	585	379	3	2,773
1st Year Savings							
Net Energy (GWh)	20.1	6.6	46.8	26.6	17.2	0.1	117.4
Net Summer Peak Demand (MW)	4.3	0.9	2.1	1.5	1.0	0.0	9.7
2020 Savings							
Net Energy (GWh)	45.9	6.6	46.8	26.6	17.2	0.1	143.2
Net Summer Peak Demand (MW)	10.2	0.9	2.1	1.5	1.0	0.0	15.5

2.4.2 Audit Funding Cost Effectiveness Results

Table 2-15 presents the province-wide cost effectiveness results of the 2020 Audit Funding program.

Table 2-15: 2020 Audit Funding Program Cost Effectiveness Results

Total Resource Cost (TRC)	
TRC Costs (\$)	\$227,317
TRC Benefits (\$)	\$96,944
TRC Net Benefits (\$)	(\$130,373)
TRC Net Benefit (Ratio)	0.43
Program Administrator Cost (PAC)	
PAC Costs (\$)	\$226,863
PAC Benefits (\$)	\$84,299
PAC Net Benefits (\$)	(\$142,564)
PAC Net Benefit (Ratio)	0.37
Levelized Unit Energy Cost (LUEC)	
\$/kWh	\$0.21
\$/kW	\$1,459.6

Table 2-16 presents the cost effectiveness results comparison of the Audit Funding program for the period of 2015-2020.

Table 2-16: Audit Funding Cost Effectiveness Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
TRC Net Benefit (Ratio)	2.28	2.19	2.62	2.05	2.89	0.43	2.41
PAC Net Benefit (Ratio)	7.13	0.93	4.55	4.11	4.80	0.37	3.95
LUEC (\$/kWh)	0.01	0.07	0.01	0.02	0.02	0.21	0.02

2.5 Existing Building Commissioning

The Existing Building Commissioning (EBCx) Program provides funding for projects comprised of the commissioning phases and the installation of measures to reduce electricity consumption associated with chilled water systems in existing industrial, commercial, institutional, and multifamily residential buildings.

2.5.1 Existing Building Commissioning Impact Results

Table 2-17 presents the province-wide results of the 2020 EBCx impact evaluation.

Table 2-17: 2020 EBCx Program Impact Results

Measurement	Project Count	Reported Savings	Realization Rate	Gross Adjusted Savings	Net-to-Gross Ratio	Net Savings	Lifetime Net Savings	Net Savings at 2020
Energy (GWh)	10	0.1	100.0%	0.1	78.0%	0.1	0.6	0.1
Summer Peak Demand (MW)		0.04	117.0%	0.04	100.0%	0.04	N/A	0.04

Table 2-18 presents the first year net verified results comparison of the EBCx program.

Table 2-18: EBCx Net Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
Projects	11	34	10	7	12	10	84
1st Year Savings							
Net Energy (GWh)	0.9	1.5	1.2	0.2	0.7	0.1	4.7
Net Summer Peak Demand (MW)	0.4	0.1	0.1	0.1	0.3	0.0	1.1
2020 Savings							
Net Energy (GWh)	2.8	0.7	1.2	0.2	0.7	0.1	5.8
Net Summer Peak Demand (MW)	0.0	0.1	0.1	0.1	0.3	0.0	0.6

2.5.2 Existing Building Commissioning Cost Effectiveness Results

Table 2-19 presents the province-wide cost effectiveness results of the 2020 EBCx program.

Table 2-19: 2020 EBCx Program Cost Effectiveness Results

Total Resource Cost (TRC)	
TRC Costs (\$)	\$54,762
TRC Benefits (\$)	\$90,028
TRC Net Benefits (\$)	\$35,266
TRC Net Benefit (Ratio)	1.64
Program Administrator Cost (PAC)	
PAC Costs (\$)	\$85,520
PAC Benefits (\$)	\$78,285
PAC Net Benefits (\$)	(\$7,235)
PAC Net Benefit (Ratio)	0.92
Levelized Unit Energy Cost (LUEC)	
\$/kWh	\$0.18
\$/kW	\$312.2

Table 2-20 presents the cost effectiveness results comparison of the EBCx program for the period of 2015-2020.

Table 2-20: EBCx Program Cost Effectiveness Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
TRC Net Benefit (Ratio)	0.00	1.46	1.02	0.49	4.62	1.64	1.39
PAC Net Benefit (Ratio)	0.00	1.19	0.57	0.33	3.62	0.92	0.94
LUEC (\$/kWh)	0.00	0.05	0.15	0.46	0.04	0.18	0.08

2.6 OPsaver

OPsaver is a 'Continuous Energy Improvement' (CEI) program that provided Toronto Hydro's medium to large sized commercial, institutional, and industrial customers with the opportunity to work with energy experts who guide them towards continuous building operations improvements. OPsaver motivates organizations to achieve and maintain operational maintenance and behavior energy savings.

Through year-over-year engagement, the program provides 'coaching' for building operators and employees to encourage energy conservation activities with the intention that these practices persist over time. Participants work with the OPsaver Consultants to identify, implement and evaluate operational and behavioural energy efficiency measures and establish continuous energy improvement processes to ensure the energy savings are realized over the long-term.

2.6.1 OPsaver Impact Results

Table 2-23 presents the results of the 2020 OPsaver Program impact evaluation.

Table 2-21: 2020 OPSaver Program Impact

Measurement	Project Count	Reported Savings	Realization Rate	Gross Adjusted Savings	Net-to-Gross Ratio	Net Savings	Lifetime Net Savings	Net Savings at 2020
Energy (GWh)	39	15.6	104.0%	16.2	100.0%	16.2	177.0	16.2
Summer Peak Demand (MW)		0.0	-	0.0	-	0.0	N/A	0.0

Table 2-24 presents the first year net verified results comparison of the OPSaver program.

Table 2-22: OPSaver Net Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
Projects	0	0	0	1	10	39	50
1st Year Savings							
Net Energy (GWh)	0.0	0.0	0.0	0.2	4.0	16.2	20.5
Net Summer Peak Demand (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2020 Savings							
Net Energy (GWh)	0.0	0.0	0.0	0.2	4.0	16.2	20.5
Net Summer Peak Demand (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2.6.2 OPSaver Program Cost Effectiveness Results

Table 2-23 presents the province-wide cost effectiveness results of the 2020 OPSaver program.

Table 2-23: 2020 OPSaver Program Cost Effectiveness Results

Total Resource Cost (TRC)	
TRC Costs (\$)	\$7,946,427
TRC Benefits (\$)	\$7,577,932
TRC Net Benefits (\$)	(\$368,495)
TRC Net Benefit (Ratio)	0.95
Program Administrator Cost (PAC)	
PAC Costs (\$)	\$986,170
PAC Benefits (\$)	\$6,589,506
PAC Net Benefits (\$)	\$5,603,336
PAC Net Benefit (Ratio)	6.68
Levelized Unit Energy Cost (LUEC)	
\$/kWh	\$0.01
\$/kW	N/A

Table 2-24 presents the cost effectiveness results comparison of the OPsaver program for the period of 2015-2020.

Table 2-24: OPsaver Program Cost Effectiveness Results Comparison

Measurement	Program Year						
	2015	2016	2017	2018	2019	2020	2015-2020
TRC Net Benefit (Ratio)	0.00	2.62	0.00	0.31	0.53	0.95	0.87
PAC Net Benefit (Ratio)	0.00	2.28	0.00	0.18	4.07	6.68	3.78
LUEC (\$/kWh)	0.00	0.02	0.00	0.26	0.01	0.01	0.01

Appendix A Business Program Impact Results

Table 2-25: Business Programs Participation by Project

Program	2015	2016	2017	2018	2019	2020	Total
Save On Energy Retrofit Program	16,292	14,285	13,082	12,211	5,211	509	61,590
Save On Energy Retrofit Program - P4P	130	1,127	865	2,215	2,921	640	7,898
Save On Energy Small Business Lighting Program	18,643	2,452	7,641	7,693	4,693	0	41,122
Save On Energy High Performance New Construction Program	331	282	303	356	207	44	1,523
Save On Energy Business Refrigeration Program	0	305	2,268	2,985	1,591	0	7,149
Save On Energy Audit Funding Program	590	499	717	585	379	3	2,773
Save On Energy Existing Building Commissioning Program	11	34	10	7	12	10	84
RTUsaver	0	0	1	678	217	0	896
PUMPSaver	0	6	203	130	38	0	377
Opsaver Program	0	0	0	1	10	39	50
Ontario Clean Water Agency P4P Conservation Fund Pilot Program	0	8	23	22	11	0	64
Hotel/Motel LDC Innovation Fund Pilot Program	0	0	4	0	0	0	4
High Efficiency Agricultural Pumping	0	0	0	12	8	0	20
Conservation Cultivator LDC Innovation Fund Pilot Program	4	0	0	0	0	0	4
Smart Thermostat	0	0	1,011	0	0	0	1,011
Building Optimization Pilot Program	0	75	0	0	0	0	75

Table 2-26: 2020 Business Programs Energy Savings

Program	Project Count	Reported Energy Savings (GWh)	Realization Rate	Gross Adjusted Energy Savings (GWh)	Net-to-Gross Ratio	Net Energy Savings (GWh)	Lifetime Net Energy Savings (GWh)	Net Energy Savings at 2020 (GWh)
Save On Energy Retrofit Program	509	117.5	98.4%	115.7	81.6%	94.4	1,139.2	94.4
Save On Energy Retrofit Program - P4P	640	78.4	106.4%	83.4	75.9%	63.4	824.2	63.4
Save On Energy Small Business Lighting Program	0	0.0	-	0.0	-	0.0	0.0	0.0
Save On Energy High Performance New Construction Program	44	7.9	108.0%	8.5	58.0%	5.0	104.0	5.0
Save On Energy Business Refrigeration Program	0	0.0	-	0.0	-	0.0	0.0	0.0
Save On Energy Audit Funding Program	3	0.2	100.0%	0.2	90.0%	0.1	1.3	0.1
Save On Energy Existing Building Commissioning Program	10	0.1	100.0%	0.1	78.0%	0.1	0.6	0.1
RTUsaver	0	0.0	-	0.0	-	0.0	0.0	0.0
PUMPSaver	0	0.0	-	0.0	-	0.0	0.0	0.0
Opsaver Program	39	15.6	104.0%	16.2	100.0%	16.2	177.0	16.2
Ontario Clean Water Agency P4P Conservation Fund Pilot Program	0	0.0	-	0.0	-	0.0	0.0	0.0
Hotel/Motel LDC Innovation Fund Pilot Program	0	0.0	-	0.0	-	0.0	0.0	0.0
High Efficiency Agricultural Pumping	0	0.0	-	0.0	-	0.0	0.0	0.0
Conservation Cultivator LDC Innovation Fund Pilot Program	0	0.0	-	0.0	-	0.0	0.0	0.0
Smart Thermostat	0	0.0	-	0.0	-	0.0	0.0	0.0
Building Optimization Pilot Program	0	0.0	-	0.0	-	0.0	0.0	0.0

Table 2-27: 2020 Business Programs Summer Peak Demand Savings

Program	Project Count	Reported Demand Savings (MW)	Realization Rate	Gross Adjusted Demand Savings (MW)	Net-to-Gross Ratio	Net Demand Savings (MW)	Net Demand Savings at 2020 (MW)
Save On Energy Retrofit Program	509	6.3	93.4%	5.9	84.0%	4.9	4.9
Save On Energy Retrofit Program - P4P	640	9.7	126.7%	12.3	78.0%	9.6	9.6
Save On Energy Small Business Lighting Program	0	0.0	-	0.0	-	0.0	0.0
Save On Energy High Performance New Construction Program	44	2.0	104.0%	2.1	108.0%	2.3	2.3
Save On Energy Business Refrigeration Program	0	0.0	-	0.0	-	0.0	0.0
Save On Energy Audit Funding Program	3	0.0	100.0%	0.0	87.0%	0.0	0.0
Save On Energy Existing Building Commissioning Program	10	0.0	117.0%	0.0	100.0%	0.0	0.0
RTUsaver	0	0.0	-	0.0	-	0.0	0.0
PUMPSaver	0	0.0	-	0.0	-	0.0	0.0
Opsaver Program	39	0.0	-	0.0	-	0.0	0.0
Ontario Clean Water Agency P4P Conservation Fund Pilot Program	0	0.0	-	0.0	-	0.0	0.0
Hotel/Motel LDC Innovation Fund Pilot Program	0	0.0	-	0.0	-	0.0	0.0
High Efficiency Agricultural Pumping	0	0.0	-	0.0	-	0.0	0.0
Conservation Cultivator LDC Innovation Fund Pilot Program	0	0.0	-	0.0	-	0.0	0.0
Smart Thermostat	0	0.0	-	0.0	-	0.0	0.0
Building Optimization Pilot Program	0	0.0	-	0.0	-	0.0	0.0

Table 2-28: 2015-2020 Business Programs Net Energy Savings at 2020 (GWh)

Program	2015	2016	2017	2018	2019	2020	Total
Save On Energy Retrofit Program	843.1	744.8	888.4	615.2	336.8	94.4	3,522.5
Save On Energy Retrofit Program - P4P	1.8	59.5	75.7	130.1	250.3	63.4	580.8
Save On Energy Small Business Lighting Program	32.3	14.0	46.9	33.9	18.6	0.0	145.7
Save On Energy High Performance New Construction Program	50.6	32.7	55.3	63.2	26.0	5.0	232.8
Save On Energy Business Refrigeration Program	0.0	0.9	9.7	12.0	5.9	0.0	28.6
Save On Energy Audit Funding Program	45.9	6.6	46.8	26.6	17.2	0.1	143.2
Save On Energy Existing Building Commissioning Program	2.8	0.7	1.2	0.2	0.7	0.1	5.8
RTUsaver	0.0	0.0	0.0	4.2	1.3	0.0	5.5
PUMPSaver	0.0	1.0	16.3	15.0	2.7	0.0	35.0
Opsaver Program	0.0	0.0	0.0	0.2	4.0	16.2	20.5
Ontario Clean Water Agency P4P Conservation Fund Pilot Program	0.0	0.4	0.9	1.3	0.6	0.0	3.2
Hotel/Motel LDC Innovation Fund Pilot Program	0.0	0.0	0.0	0.0	0.0	0.0	0.0
High Efficiency Agricultural Pumping	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conservation Cultivator LDC Innovation Fund Pilot Program	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Smart Thermostat	0.0	0.0	1.1	0.0	0.0	0.0	1.1
Building Optimization Pilot Program	0.0	1.8	0.0	0.0	0.0	0.0	1.8

Table 2-29: 2015-2020 Business Programs Net Summer Peak Demand Savings at 2020 (MW)

Program	2015	2016	2017	2018	2019	2020	Total
Save On Energy Retrofit Program	120.2	102.2	139.6	82.5	47.2	4.9	496.7
Save On Energy Retrofit Program - P4P	0.3	7.1	12.1	20.7	36.1	9.6	86.0
Save On Energy Small Business Lighting Program	7.4	3.0	10.4	6.5	3.8	0.0	31.1
Save On Energy High Performance New Construction Program	12.7	9.3	10.3	23.1	11.2	2.3	68.9
Save On Energy Business Refrigeration Program	0.0	0.1	1.3	0.9	0.5	0.0	2.8
Save On Energy Audit Funding Program	10.2	0.9	2.1	1.5	1.0	0.0	15.5
Save On Energy Existing Building Commissioning Program	0.0	0.1	0.1	0.1	0.3	0.0	0.6
RTUsaver	0.0	0.0	0.0	1.9	0.5	0.0	2.5
PUMPSaver	0.0	0.1	2.1	2.1	0.3	0.0	4.6
Opsaver Program	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ontario Clean Water Agency P4P Conservation Fund Pilot Program	0.0	0.0	0.1	0.2	0.1	0.0	0.5
Hotel/Motel LDC Innovation Fund Pilot Program	0.0	0.0	0.0	0.0	0.0	0.0	0.0
High Efficiency Agricultural Pumping	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conservation Cultivator LDC Innovation Fund Pilot Program	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Smart Thermostat	0.0	0.0	0.2	0.0	0.0	0.0	0.2
Building Optimization Pilot Program	0.0	0.8	0.0	0.0	0.0	0.0	0.8

Appendix B Business Program Cost Effectiveness Results

Table 2-30: 2020 Business Programs Cost Effectiveness Results

Program	CE Test		
	TRC	PAC	LUEC (\$/kWh)
Save On Energy Retrofit Program	1.2	2.8	0.03
Save On Energy Retrofit Program - P4P	1.4	2.9	0.03
Save On Energy High Performance New Construction Program	0.2	2.5	0.05
Save On Energy Audit Funding Program	0.4	0.4	0.21
Save On Energy Existing Building Commissioning Program	1.6	0.9	0.18
Opsaver Program	1.0	6.7	0.01

PY2015 – PY2020 cost effectiveness result are presented in Table 2-31 and Table 2-32. The results are separated into two tables for ease of readability.

Table 2-31: 2015-2018 Business Programs Cost Effectiveness Results

Year Program	2015			2016			2017			2018		
	TRC	PAC	LUEC (\$/kWh)	TRC	PAC	LUEC (\$/kWh)	TRC	PAC	LUEC (\$/kWh)	TRC	PAC	LUEC (\$/kWh)
Save On Energy Retrofit Program	0.97	2.32	0.03	1.05	3.34	0.02	1.24	3.74	0.02	1.10	3.56	0.02
Save On Energy Retrofit Program - P4P	1.57	2.52	0.03	0.98	2.48	0.03	1.95	11.97	0.01	1.82	3.16	0.02
Save On Energy Small Business Lighting Program	0.00	0.00	0.00	1.45	1.46	0.05	2.07	2.27	0.04	1.27	1.29	0.07
Save On Energy High Performance New Construction Program	0.10	3.72	0.02	1.22	3.97	0.03	0.94	3.94	0.02	0.31	7.04	0.02
Save On Energy Business Refrigeration Program	0.00	0.00	0.00	1.07	0.87	0.08	1.45	1.19	0.06	1.36	1.19	0.05
Save On Energy Audit Funding Program	2.28	7.13	0.01	2.19	0.93	0.07	2.62	4.55	0.01	2.05	4.11	0.02
Save On Energy Existing Building Commissioning Program	0.00	0.00	0.00	1.46	1.19	0.05	1.02	0.57	0.15	0.49	0.33	0.46
RTUsaver	0.00	0.00	0.00	0.42	0.31	0.18	0.00	0.00	0.00	5.54	3.89	0.04
PUMPSaver	0.00	0.00	0.00	2.94	2.56	0.02	13.55	5.01	0.01	8.72	7.56	0.01
Opsaver Program	0.00	0.00	0.00	2.62	2.28	0.02	0.00	0.00	0.00	0.31	0.18	0.26
Ontario Clean Water Agency P4P Conservation Fund Pilot Program	0.00	0.00	0.00	3.07	2.37	0.03	14.28	8.10	0.01	13.57	7.79	0.01
Hotel/Motel LDC Innovation Fund Pilot Program	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	1.74	0.00	0.00	0.00
High Efficiency Agricultural Pumping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	4.69
Conservation Cultivator LDC Innovation Fund Pilot Program	0.26	0.22	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Smart Thermostat	0.00	0.00	0.00	0.40	0.56	0.13	0.43	0.61	0.13	0.45	0.63	0.13
Building Optimization Pilot Program	0.00	0.00	0.00	2.42	5.50	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Annual Results	0.79	2.24	0.03	1.09	3.23	0.02	1.35	3.76	0.02	0.84	3.50	0.02

Table 2-32: 2019-2020 and Portfolio-Level Business Programs Cost Effectiveness Results

Year Program	2019			2020			Total		
	TRC	PAC	LUEC (\$/kWh)	TRC	PAC	LUEC (\$/kWh)	TRC	PAC	LUEC (\$/kWh)
Save On Energy Retrofit Program	1.19	3.79	0.02	1.23	2.80	0.03	1.12	3.46	0.02
Save On Energy Retrofit Program - P4P	4.42	9.87	0.01	1.41	2.95	0.03	1.95	4.52	0.02
Save On Energy Small Business Lighting Program	1.28	0.94	0.08	0.00	0.00	0.00	1.23	1.25	0.07
Save On Energy High Performance New Construction Program	0.35	5.17	0.02	0.24	2.50	0.05	0.43	4.90	0.02
Save On Energy Business Refrigeration Program	0.95	0.93	0.07	0.00	0.00	0.00	1.27	1.11	0.06
Save On Energy Audit Funding Program	2.89	4.80	0.02	0.43	0.37	0.21	2.41	3.95	0.02
Save On Energy Existing Building Commissioning Program	4.62	3.62	0.04	1.64	0.92	0.18	1.39	0.94	0.08
RTUsaver	5.08	3.52	0.04	0.00	0.00	0.00	4.04	2.88	0.05
PUMPSaver	5.70	5.00	0.02	0.00	0.00	0.00	8.92	5.70	0.02
Opsaver Program	0.53	4.07	0.01	0.95	6.68	0.01	0.87	3.78	0.01
Ontario Clean Water Agency P4P Conservation Fund Pilot Program	13.86	7.96	0.01	0.00	0.00	0.00	11.29	6.88	0.01
Hotel/Motel LDC Innovation Fund Pilot Program	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	1.74
High Efficiency Agricultural Pumping	0.03	0.02	3.48	0.00	0.00	0.00	0.03	0.02	4.47
Conservation Cultivator LDC Innovation Fund Pilot Program	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.22	0.29
Smart Thermostat	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.61	0.13
Building Optimization Pilot Program	0.00	0.00	0.00	0.00	0.00	0.00	2.42	5.50	0.02
Annual Results	1.16	4.28	0.02	0.99	2.89	0.03	1.07	3.48	0.02



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