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# PROGRAM YEAR 2020 REVIEW REPORT: AN ADDENDUM TO PY2018 & PY2019 REVIEW REPORT

CONSERVATION FIRST FRAMEWORK INDUSTRIAL AND ENERGY  
PERFORMANCE PROGRAMS

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## ABBREVIATIONS

CFF	Conservation First Framework
EM	Energy Manager
EM&V	Evaluation, Measurement, and Verification
EPP	Energy Performance Program
EUL	Effective Useful Life
IAP	Industrial Accelerator Program
GWh	Gigawatt Hour
IAP CI	Industrial Accelerator Program: Capital Incentives
IESO	Independent Electricity System Operator
kW	Kilowatt
kWh	Kilowatt hour
LDC	Local Distribution Company
LUEC	Levelized Unit Energy Cost
M&T	Monitoring and Targeting
M&V	Measurement and Verification
MW	Megawatt
MWh	Megawatt Hour
NTG	Net-to-Gross
O&M	Operations and Maintenance
PAC	Program Administrator Cost
PSUP	Process and Systems Upgrades Program
PY	Program Year
RR	Realization Rate
TRC	Total Resource Cost
YOY	Year-over-Year

# FOREWARD

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This report is an addendum to the Evaluation of 2018 and 2019 Industrial Programs and the Energy Performance Program (EPP) Reports and provides an overall summary of the energy and demand savings achieved by the Independent Electricity System Operator (IESO) –funded energy efficiency programs in program year (PY) 2020 within the Conservation First Framework (CFF). This report is intended for all parties interested in industrial energy efficiency programs in Ontario and EPP. All projects pre-approved by the local distribution companies before May 1, 2019, were given until December 31, 2020, to be completed except for the Process & Systems Upgrades Program, for which timelines were extended until December 31, 2021, to complete projects due to the impacts of the COVID-19 pandemic.

# EXECUTIVE SUMMARY

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Industrial programs incentivize equipment measures, engineering studies, and Energy Manager services for commercial and industrial facilities in Ontario. The Energy Performance Program (EPP) provides a performance-based approach to incenting energy efficiency improvements for multi-site commercial customers. This report contains gross and net energy and demand impacts for the following Conservation First Framework (CFF) programs:

- ▶ Process and Systems Upgrades Program (PSUP),
- ▶ Industrial Accelerator Program (IAP),
- ▶ Energy Manager Non-Incented measures (EM),
- ▶ Monitoring and Targeting (M&T), and
- ▶ Energy Performance Program (EPP).

PSUP is Local Distribution Company (LDC) administered and offered to companies connected to Ontario's distribution system. The program provides financial support for the implementation of energy efficiency projects and system optimization projects for facilities that are intrinsically complex and capital-intensive.

IAP is offered to companies connected directly to Ontario's transmission system. This program provides incentives through three program streams: Capital Incentives (referred to interchangeably as IAP Process & Systems), Retrofit, and Energy Manager.

The Energy Manager program is offered to both sets of customers noted above. The program subsidizes the salary of a trained energy manager to work directly with participating facilities to find energy savings, identify smart energy investments, secure financial incentives, and unleash competitive advantage.

The Monitoring and Targeting program encourages industrial distribution-connected customers to install or upgrade M&T systems to relate a facility's energy consumption data to the weather, production schedule, or other measures in such a way as to provide a better understanding of how energy is being used.

Throughout this report, PSUP, IAP, EM, and M&T are referred to as the "industrial portfolio".

Finally, the Energy Performance Program provides a performance-based whole-building approach to incenting energy efficiency improvements for multi-site customers that span multiple LDCs in the province.



## E.1 IMPACT METHODOLOGY AND GOALS

CFF was discontinued effective March 21, 2019 by Ministerial Directive. All projects pre-approved by the local distribution companies before May 1, 2019 were given until December 31, 2020 to be completed except for the Process & Systems Upgrades Program which timelines were extended until December 31, 2021 to complete projects due to the impacts of the COVID-19 pandemic.

This report focuses on an orderly and cost effective impact review of the performance of the CFF industrial portfolio and EPP in PY2020. This simplified approach to review will reduce the costs associated with program evaluation.

Approaches used to conduct this simplified CFF wind down review included a review of projects reported and an adjustment to reported savings to calculate gross and net savings based on historical realization rates and net to gross ratios.

In abbreviated form, goals of this simplified CFF wind down review include:

- ▶ Adjust reported energy and summer peak demand savings by program to estimate gross and net savings
- ▶ Analyze the cost effectiveness of each program

## E.2 REPORTED SAVINGS

IESO's PY2020 industrial program portfolio comprises of programs and initiatives shown in Table 1 below. This table includes projects in-service starting in calendar year 2020 meaning:

- a) they have at least one quarter (3 months) of measurement and verification (M&V) data available and are not otherwise on hold for administrative reasons (PSUP, IAP).

OR

- b) they have been through the technical review process for the program and are not otherwise on hold for administrative reasons (Energy Manager non-incented, M&T, EPP).

Table 1 shows reported savings and program contributions to the industrial portfolio and EPP in PY2020.

Table 1: PY2020 Reported Savings

Program	PSUP	Energy Manager	M&T	IAP Initiative	EPP	Annual Total
2020 Projects Reported	-	27	-	2	66	95
2020 Reported Energy Savings (MWh)	-	2,143	-	930	3,154	6,227

### E.3 IMPACT RESULTS SUMMARY

In reviewing the CFF industrial portfolio for PY2020, 27 projects were reported from the Energy Manager program and two projects were reported from the IAP Initiative. For EPP, 66 facilities were reported. As the framework winds down, the number of projects implemented is expected to decline each year.

Total industrial portfolio gross estimated energy savings in PY2020 are 3,071 MWh or 99.9% of reported savings. Total gross estimated summer peak demand savings for the industrial portfolio in PY2020 are 0.22 MW or 102% of reported savings. For EPP, total gross estimated energy savings in PY2020 are 3,154 MWh representing 100% of reported savings.

Net estimated energy savings for the industrial portfolio are 2,449 MWh in PY2020 or 80% of gross estimated savings. Historically, there has been low levels of free-ridership across the programs in previous analyses, and there has been no spillover attributed to the programs across the portfolio. Net estimated summer peak demand savings for the industrial portfolio in PY2020 are 0.18 MW. EPP achieved 2,365 MWh of net estimated energy savings, 75% of gross estimated savings.

Energy and demand savings from the review of the industrial portfolio and EPP in PY2020 are summarized in Table 2. The results in Table 2 and throughout the remainder of this report include projects that were reported during PY2020 and went into service starting in 2020. Projects that went into service in 2019 and before under the CFF but were not included in previous evaluations as the technical review process had not been completed in time are referred to as “true up” projects. Savings results for true up projects can be found in the CFF Incremental Savings (2015-2020) sections and Appendix A.

In total, the industrial portfolio and EPP achieved 4,814 MWh of net energy savings in PY2020 compared to 57,605 MWh in PY2019. Savings have continued to decline as the framework winds down.

Figure 1: PY2020 Reported, Gross, and Net Estimated Savings by Program (MWh)

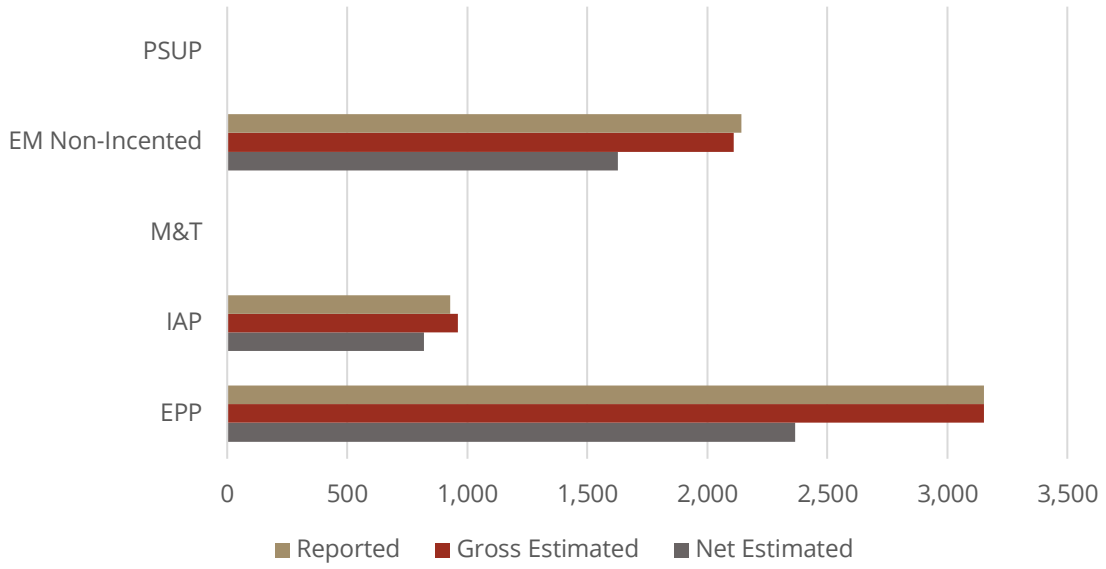


Figure 2: Net Estimated First Year Energy Savings Comparison, PY2018-PY2020 (MWh)

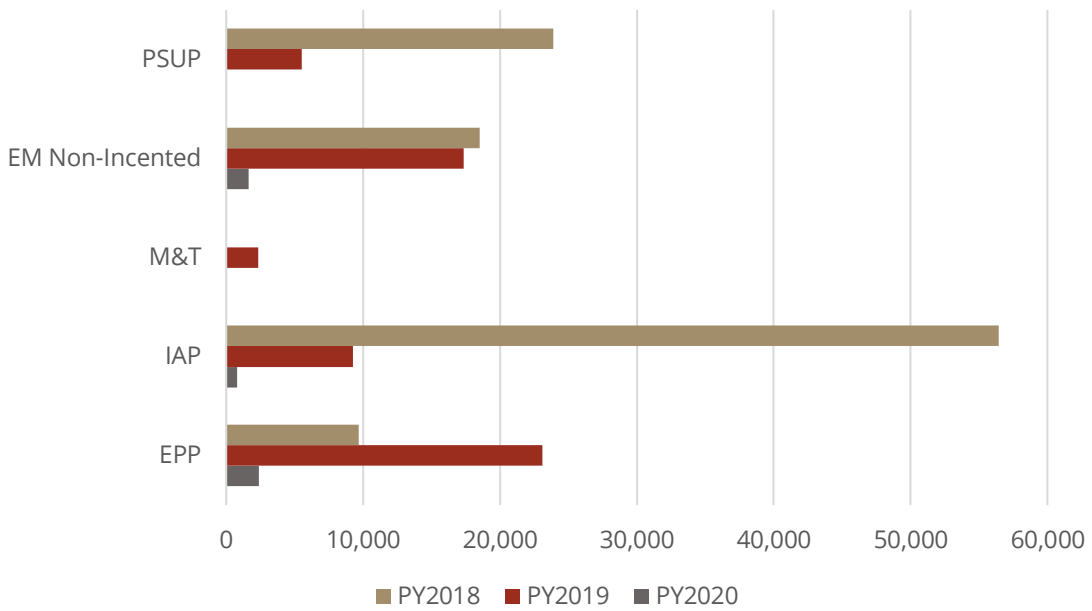


Table 2: PY2020 Impact Review Results Summary

Program	Projects Reported	Energy Realization Rate <sup>1</sup>	Gross Estimated Energy Savings (MWh)	Demand Realization Rate	Gross Estimated Summer Peak Demand Savings (MW)	Energy Net to Gross Ratio <sup>2</sup>	Net Estimated First Year Energy Savings (MWh)	Net Estimated 2020 Energy Savings (MWh)	Net Estimated Summer Peak Demand Savings (MW)
Process & Systems Upgrades (PSUP)	-	-	-	-	-	-	-	-	-
Energy Manager Non-Incented (EM)	27	98.4%	2,109	108.5%	0.06	77.2%	1,628	1,628	0.05
Monitoring & Targeting (M&T)	-	-	-	-	-	-	-	-	-
IAP Initiative	2	103.4%	962	99.2%	0.15	85%	820	820	0.13
<b>Industrial Portfolio Total</b>	<b>29</b>	<b>99.9%</b>	<b>3,071</b>	<b>101.8%</b>	<b>0.22</b>	<b>80%</b>	<b>2,449</b>	<b>2,449</b>	<b>0.18</b>
Energy Performance Program (EPP)	66	100.0%	3,154	NA	NA <sup>3</sup>	75%	2,365	2,365	NA
<b>GRAND TOTAL</b>	<b>95</b>	<b>100.0%</b>	<b>6,225</b>	<b>101.8%</b>	<b>0.22</b>	<b>77%</b>	<b>4,814</b>	<b>4,814</b>	<b>0.18</b>

<sup>1</sup> Realization Rate (RR) is the gross estimated savings divided by the reported savings.

<sup>2</sup> Net to Gross (NTG) Ratio is the result of historical net to gross analyses that defined the total change in every consumption attributable to each program. NTG ratio is defined as 100% – free ridership + spillover.

<sup>3</sup> Summer peak demand savings are not reported for the Energy Performance Program.

### E.3.1 COST EFFECTIVENESS (2015-2020)

Table 3 summarizes the industrial portfolio and EPP's cumulative cost effectiveness throughout the CFF. The industrial portfolio is cost effective from the Total Resource Cost (TRC) and Program Administrator (PAC) perspectives using a benefit/cost threshold of 1.0. EPP is also cost effective from both test perspectives. There was an overall declining trend in the cost effectiveness of the portfolio as participation steadily decreased throughout the framework.

*Table 3: PY2015-PY2020 Cost Effectiveness Results*

Program	TRC	PAC	LUEC
Process & Systems Upgrades (PSUP)	0.68	2.01	0.03
Energy Manager Non-Incented (EM)	0.91	3.17	0.02
Monitoring & Targeting (M&T)	2.31	8.95	0.03
IAP Initiative	2.33	3.91	0.02
<b>Industrial Portfolio Total</b>	<b>1.24</b>	<b>2.75</b>	<b>0.03</b>
Energy Performance Program (EPP)	1.03	3.60	0.01
<b>Grand Total</b>	<b>1.24</b>	<b>2.76</b>	<b>0.03</b>

# 1 PROCESS SYSTEMS & UPGRADES PROGRAM RESULTS

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Sections 1 through 5 contain the PY2020 energy and demand savings results for the individual programs in the industrial portfolio, as well as the Energy Performance Program. The 2020 results represent savings achieved in PY2020 for projects that went in service in 2020. The 2019 results represent savings achieved in PY2019 for projects that went in service in 2019 and were reported in the PY2019 Review Report. The same reporting structure is applied to the 2018 results as well. The impact results from true up projects are summarized in Table 25. True up projects went into service in 2019 and before under the CFF but were not included in previous evaluations as the technical review process had not been completed in time for reporting or they were on hold for administrative reasons.

The Process & Systems Upgrades Program (PSUP) provides financial support for the implementation of energy efficiency projects and system optimization projects for facilities that are intrinsically complex and capital-intensive. Twenty industrial customers completed PSUP projects in PY2020. None of these projects have been invoiced to the IESO by the LDCs. Completing the invoicing process for a project is a requirement for savings to be reported.<sup>4</sup>

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<sup>4</sup> Projects completed and technically reviewed in PY2020 but did not get invoiced will be reported in the PY2020 results as true ups in future addendums once invoiced.

## 1.1 PSUP GROSS ESTIMATED SAVINGS

Table 4: PY2020 PSUP Gross Estimated Savings Results

Program Year	Projects Reported	Energy Realization Rate %	Gross Estimated First Year Energy Savings (MWh)	Gross Estimated Peak Demand Savings (MW)
2020	-	NA	-	-
2019	9	100.1%	6,750	1.65
2018	10	100.1%	29,200	3.47

## 1.2 PSUP NET ESTIMATED SAVINGS

Table 5: PY2020 PSUP Net Estimated Savings Results

Program Year	Projects Reported	Energy NTG Ratio (%)	Net Estimated First Year Energy Savings (MWh)	Net Estimated 2020 Energy Savings (MWh)	Net Estimated Summer Peak Demand Savings (MW)	Net Estimated 2020 Summer Peak Demand Savings (MW)
2020	-	NA	-	-	-	-
2019	9	82%	5,521	5,521	1.34	1.34
2018	10	82%	23,886	23,886	2.82	2.82

## 1.3 PSUP INCREMENTAL FRAMEWORK SAVINGS (2015-2020)

Total net estimated first year energy savings for PSUP in the CFF from 2015 to 2020 are 464.9 GWh as summarized in Table 6. The savings in this section are derived from all projects reported so far throughout the framework, including true up projects. Over 64% of the total framework energy savings for the program were achieved in 2015. As the framework winds down, program total energy savings decline each year. One hundred percent of the CFF PSUP energy savings persist to 2020. Total net estimated summer peak demand savings for PSUP in the CFF from 2015 to 2020 are 53 MW.

Table 6: PY2015 to PY2020 PSUP Incremental Net Savings

Program Year	2015	2016	2017	2018	2019	2020	Total
Net Estimated First Year Energy Savings (GWh)	299.4	78.2	41.7	32.4	13.3	-	464.9
Net Estimated 2020 Energy Savings (GWh)	299.4	78.2	41.7	32.4	13.3	-	464.9
Net Estimated Summer Peak Demand Savings (MW)	27.3	8.4	10.3	4.5	2.6	-	53.0
Net Estimated 2020 Summer Peak Demand Savings (MW)	27.3	8.4	10.3	4.5	2.6	-	53.0

#### 1.4 PSUP COST EFFECTIVENESS (2015-2020)

As shown in Table 7, PSUP is not cost effective from the TRC test perspective using a benefit/cost threshold of 1.0. However, the program is cost effective from the PAC test perspective with a cumulative benefit/cost ratio of 2.01 from 2015-2020.

Table 7: PSUP Cost Effectiveness Results (2015-2020)

Cost Benefit Ratio	2015	2016	2017	2018	2019	2020	Total
TRC	0.62	0.55	1.21	0.90	0.53	-	0.68
PAC	1.53	5.07	4.45	3.02	1.89	-	2.01
LUEC	0.04	0.01	0.02	0.03	0.05	-	0.03



## 2 ENERGY MANAGER PROGRAM RESULTS

The Energy Manager program subsidizes the salary of a trained energy manager to work directly with participating facilities to find energy savings, identify smart energy investments, secure financial incentives, and unleash competitive advantage. Energy managers can identify capital improvements that are eligible for incentive payments through PSUP, Business Retrofit, and EPP. Savings from these projects accrue to, and are evaluated in, the program that incents the improvement. Non-incented Energy Manager projects from commercial LDC accounts, industrial LDC accounts, and transmission-connected accounts were evaluated together. The gross and net estimated savings values presented in this section of the report focus on LDC accounts. Savings associated with transmission-connected accounts (IAP EM) are discussed in Section 3.

Eighty-eight non-incented measures were implemented by energy managers in PY2020. Twenty-seven of these measures have been invoiced to the IESO by the LDCs. Completing the invoicing process for a project is a requirement for savings to be reported.<sup>5</sup>

### 2.1 EM GROSS ESTIMATED SAVINGS

Table 8 summarizes the gross estimated energy savings for the LDC Energy Manager non-incented measures in PY2020. Overall, the measures achieved 2,109 MWh in gross energy savings in PY2020—98.4% of reported savings. Gross summer peak demand savings totaled 0.06 MW.

*Table 8: PY2020 EM Non-Incented Gross Estimated Savings Results*

Program Year	Projects Reported	Energy Realization Rate %	Gross Estimated First Year Energy Savings (MWh)	Gross Estimated Peak Demand Savings (MW)
2020	27	98.4%	2,109	0.06
2019	231	98.4%	22,500	3.68
2018	144	98.4%	23,992	3.86

<sup>5</sup> Projects completed and technically reviewed in PY2020 but did not get invoiced will be reported in the PY2020 results as true ups in future addendums once invoiced.

## 2.2 EM NET ESTIMATED SAVINGS

Table 9 shows the EM non-incented savings achieved in PY2020. The program-level NTG ratio for the EM non-incented measures in PY2020 was 77.2%, totaling 1,628 MWh net first year energy savings and 0.05 MW net summer peak demand savings.

Net savings declined by 90% from PY2019 as the framework winds down. The projects implemented in PY2020 achieved an average of 60 MWh net energy savings per measure compared to 75 MWh per measure in PY2019. As is typical in the non-incented EM program track, the projects implemented in both years were a diverse set of capital and O&M measures.

*Table 9: PY2020 EM Non-Incented Net Estimated Savings Results*

Program Year	Projects Reported	Energy NTG Ratio (%)	Net Estimated First Year Energy Savings (MWh)	Net Estimated 2020 Energy Savings (MWh)	Net Estimated Summer Peak Demand Savings (MW)	Net Estimated 2020 Summer Peak Demand Savings (MW)
2020	27	77%	1,628	1,628	0.05	0.05
2019	231	77%	17,370	16,140	2.94	2.92
2018	144	77%	18,522	15,379	3.09	2.39

Energy managers have found to be key players in project identification, analysis, and documentation. The program has also proven to encourage participants to complete additional projects, although no spillover has been historically attributed to the program as participants expect to receive incentives through the IESO's other program offerings.

## 2.3 EM INCREMENTAL FRAMEWORK SAVINGS (2015-2020)

Total net estimated first year energy savings for the EM program in the CFF from 2015 to 2020 are 109.1 GWh as summarized in Table 8. The savings in this section are derived from all projects reported so far throughout the framework, including true up projects. Program savings are steady from year to year, except for PY2020 when project implementation was negatively affected by the COVID-19 pandemic. Over 77% the CFF EM program energy savings persist to 2020. Total net estimated summer peak demand savings for the EM program in the CFF from 2015 to 2020 are 14.8 MW.

Table 10: PY2015 to PY2020 EM Non-Incented Incremental Net Savings

Program Year	2015	2016	2017	2018	2019	2020	Total
Net Estimated First Year Energy Savings (GWh)	-	27.8	28.8	28.7	22.3	1.6	109.1
Net Estimated 2020 Energy Savings (GWh)	-	22.9	15.1	24.4	20.9	1.6	85
Net Estimated Summer Peak Demand Savings (MW)	-	3.4	3.3	3.9	4.2	0.1	14.8
Net Estimated 2020 Summer Peak Demand Savings (MW)	-	3.0	2.0	3.1	4.1	0.1	12.3

## 2.4 EM COST EFFECTIVENESS (2015-2020)

As shown in Table 11, the EM program is not cost effective from the TRC test perspective using a benefit/cost threshold of 1.0. However, the program is cost effective from the PAC test perspective with a cumulative benefit/cost ratio of 3.17 from 2015-2020. There has been an overall declining trend in the cost effectiveness of the program since 2017 as the framework is winding down and participation has decreased.

Table 11: EM Cost Effectiveness Results (2015-2020)

Cost Benefit Ratio	2015	2016	2017	2018	2019	2020	Total
TRC	-	1.76	0.66	1.7	0.62	0.15	0.91
PAC	-	3.22	3.58	5.29	3.63	0.16	3.17
LUEC	-	0.02	0.02	0.01	0.02	0.38	0.02

### 3 INDUSTRIAL ACCELERATOR PROGRAM RESULTS

The Industrial Accelerator Program is administered directly by the IESO, offered to transmission-connected customers, and provides incentives through three program tracks: Capital Incentives (referred to interchangeably as IAP Process & Systems and IAP CI), Retrofit, and Energy Manager. Program delivery for each of these tracks closely mimics the respective LDC-administered programs. For clarity, savings from IAP Retrofit and IAP EM are not included with Business Retrofit or LDC account EM programs.

One project was implemented via both the IAP Retrofit and IAP Energy Manager tracks in PY2020. The IAP Capital Incentives track saw no projects implemented in PY2020.

#### 3.1 IAP GROSS ESTIMATED SAVINGS

Table 12 shows gross estimated savings for the IAP Initiative. Overall, the initiative achieved 962 MWh of gross estimated energy savings in PY2020, resulting in an overall energy realization rate of 103.4%. The initiative also achieved 0.15 MW of gross estimated summer peak demand savings in PY2020.

Table 12: PY2020 IAP Gross Estimated Savings Results

Initiative	Program Year	Projects Reported	Energy Realization Rate (%)	Gross Estimated First Year Energy Savings (MWh)	Gross Estimated Summer Peak Demand Savings (MW)
IAP Capital Incentives	2020	-	NA	-	-
IAP Retrofit	2020	1	104.0%	905	0.09
IAP Energy Manager Non-Incented	2020	1	95.4%	56	0.05
<b>2020 Total</b>		<b>2</b>	<b>103.4%</b>	<b>962</b>	<b>0.15</b>
IAP Capital Incentives	2019	1	99.91%	1,279	0.18
IAP Retrofit	2019	14	103.98%	3,665	0.50
IAP Energy Manager Non-Incented	2019	8	95.35%	6,304	2.31
<b>2019 Total</b>		<b>23</b>	<b>98.52%</b>	<b>11,248</b>	<b>3.00</b>
IAP Capital Incentives	2018	7	100.00%	54,644	0.58
IAP Retrofit	2018	25	98.00%	6,047	0.78
IAP Energy Manager Non-Incented	2018	33	98.00%	8,846	1.01
<b>2018 Total</b>		<b>65</b>	<b>99.70%</b>	<b>69,537</b>	<b>2.44</b>

### 3.2 IAP NET ESTIMATED SAVINGS

The overall NTG ratio for the IAP Initiative was 85%, as shown in Table 13. Total net estimated energy savings for the initiative was 820 MWh in PY2020. Historically, NTG surveys conducted between 2015-2017 found that IAP projects demonstrated low levels of free-ridership and no attributed spillover.

Net energy savings achieved by the IAP Initiative fell 91% from PY2020, due to a decline in the number of projects implemented and reported. Historically, the IAP CI initiative supported robust savings in IAP due to the complexity and size of the projects the program funds. However, in PY2020 no IAP CI projects were reported.

Table 13: PY2020 IAP Net Estimated Savings Results

Initiative	Program Year	Projects Reported	Energy NTG Ratio (%)	Net Estimated First Year Energy Savings (MWh)	Net Estimated 2020 Energy Savings (MWh)	Net Estimated Summer Peak Demand Savings (MW)	Net Estimated 2020 Summer Peak Demand Savings (MW)
IAP Capital Incentives	2020	-	NA	-	-	-	-
IAP Retrofit	2020	1	86%	776	776	0.086	0.086
IAP Energy Manager Non-Incented	2020	1	79%	44	44	0.045	0.045
<b>2020 Total</b>		<b>2</b>	<b>85%</b>	<b>820</b>	<b>820</b>	<b>0.131</b>	<b>0.131</b>
IAP Capital Incentives	2019	1	92%	1,175	1,175	0.17	0.17
IAP Retrofit	2019	14	86%	3,141	3,141	0.44	0.44
IAP Energy Manager Non-Incented	2019	8	79%	4,960	4,211	1.98	0.43
<b>2019 Total</b>		<b>23</b>	<b>83%</b>	<b>9,276</b>	<b>8,527</b>	<b>2.58</b>	<b>1.04</b>
IAP Capital Incentives	2018	7	82%	44,698	44,698	0.47	0.47
IAP Retrofit	2018	25	82%	4,934	4,934	0.67	0.67
IAP Energy Manager Non-Incented	2018	33	77%	6,829	3,495	0.86	0.54
<b>2018 Total</b>		<b>65</b>	<b>81%</b>	<b>56,462</b>	<b>53,127</b>	<b>1.99</b>	<b>1.68</b>

### 3.3 IAP INCREMENTAL FRAMEWORK SAVINGS (2015-2020)

Total net estimated first year energy savings for the IAP initiative in the CFF from 2015 to 2020 are 451.7 GWh as summarized in Table 14. The savings in this section are derived from all projects reported so far throughout the framework, including true up projects. Projects implemented through the IAP Capital Incentives initiative path tend to very large and achieve a high level of savings. As such, the IAP Initiative accounts for 42% of the industrial portfolio's 2020 energy savings achieved under the CFF. Program savings have declined since 2019 as the framework winds down. Over 94% the CFF IAP Initiative energy savings persist to 2020. Total net estimated summer peak demand savings for the IAP Initiative in the CFF from 2015 to 2020 are 106.3 MW.

Table 14: PY2015 to PY2020 IAP Incremental Net Savings

Program Year	2015	2016	2017	2018	2019	2020	Total
Net Estimated First Year Energy Savings (GWh)	38.4	139.1	130.0	133.1	10.2	0.8	451.7
Net Estimated 2020 Energy Savings (GWh)	38.4	137.1	115.0	126.7	9.5	0.8	427.5
Net Estimated Summer Peak Demand Savings (MW)	4.4	67.7	13.9	17.4	2.7	0.1	106.3
Net Estimated 2020 Summer Peak Demand Savings (MW)	4.4	67.7	13.3	17.1	1.2	0.1	103.9

### 3.4 IAP COST EFFECTIVENESS (2015-2020)

As shown in Table 15, the IAP initiative program is cost effective from both the TRC and PAC test perspectives using a benefit/cost threshold of 1.0. Similar to other programs in the portfolio, there has been an overall declining trend in the cost effectiveness of the program as the framework is winding down and participation has decreased.

Table 15: IAP Cost Effectiveness Results (2015-2020)

Cost Benefit Ratio	2015	2016	2017	2018	2019	2020	Total
TRC	1.14	3.94	3.77	1.32	1.69	0.31	2.33
PAC	2.03	5.89	3.64	4.29	2.72	0.34	3.91
LUEC	0.03	0.02	0.02	0.02	0.03	0.25	0.02

## 4 MONITORING & TARGETING PROGRAM RESULTS

The Monitoring and Targeting (M&T) Program encourages industrial distribution customers to install or upgrade M&T systems to relate a facility's energy consumption data to the weather, production schedule, or other measures in such a way as to provide a better understanding of how energy is being used. M&T systems are expected to identify signs of avoidable energy waste or other opportunities to reduce consumption. Project eligibility is partly contingent on achieving a savings goal within 24 months of installation and sustaining these savings for the terms of the participant agreement, five years from the date the M&T system is installed.

There were no M&T projects that went into service in PY2020 and were ready for review. The two-year implementation schedule of M&T projects leads to a somewhat longer technical review phase and supporting data to verify savings that has not been available in the past.

### 4.1 M&T GROSS ESTIMATED SAVINGS

Table 16: PY2020 M&T Gross Estimated Savings Results

Program Year	Projects Reported	Energy Realization Rate %	Gross Estimated First Year Energy Savings (MWh)	Gross Estimated Peak Demand Savings (MW)
2020	-	NA	-	-
2019	3	100.0%	2,317	4.37
2018	-	NA	-	-

### 4.2 M&T NET ESTIMATED SAVINGS

Table 17: PY2020 M&T Net Estimated Savings Results

Program Year	Projects Reported	Energy NTG Ratio (%)	Net Estimated First Year Energy Savings (MWh)	Net Estimated 2020 Energy Savings (MWh)	Net Estimated Summer Peak Demand Savings (MW)	Net Estimated 2020 Summer Peak Demand Savings (MW)
2020	-	NA	-	-	-	-
2019	9	100%	2,317	2,317	4.37	4.37
2018	-	NA	-	-	-	-

### 4.3 M&T INCREMENTAL FRAMEWORK SAVINGS (2015-2020)

Total net estimated first year energy savings for the M&T program in the CFF from 2015 to 2020 are 4.6 GWh as summarized in Table 18. Over 54% the CFF M&T program energy savings persist to 2020. Total net estimated summer peak demand savings for the program in the CFF from 2015 to 2020 are 4.6 MW.

Table 18: PY2015 to PY2020 M&T Incremental Net Savings

Program Year	2015	2016	2017	2018	2019	2020	Total
Net Estimated First Year Energy Savings (GWh)	-	-	2.1	0.2	2.3	-	4.6
Net Estimated 2020 Energy Savings (GWh)	-	-	-	0.2	2.3	-	2.5
Net Estimated Summer Peak Demand Savings (MW)	-	-	0.0	0.2	4.4	-	4.6
Net Estimated 2020 Summer Peak Demand Savings (MW)	-	-	-	0.0	4.4	-	4.4

### 4.4 M&T COST EFFECTIVENESS (2015-2020)

As shown in Table 19, the M&T program is cost effective from both the TRC and PAC test perspectives using a benefit/cost threshold of 1.0. Since participation has been very low compared to other programs in the portfolio, each individual project has a relatively larger effect on the program's cost effectiveness. This has resulted in higher variability in the benefit/cost ratios from year to year.

Table 19: M&T Cost Effectiveness Results (2015-2020)

Cost Benefit Ratio	2015	2016	2017	2018	2019	2020	Total
TRC	-	-	0.68	1.21	3.54	-	2.31
PAC	-	-	8.86	1.26	10.99	-	8.95
LUEC	-	-	0.01	0.04	0.04	-	0.03



# 5 ENERGY PERFORMANCE PROGRAM RESULTS

The Energy Performance Program (EPP) provides a performance-based whole-building approach to incenting energy efficiency improvements which gives multi-site customers with greater flexibility in measure selection. The program was designed to reduce the administrative burden and challenges for multi-site customers in participating in Save on Energy programs across multiple LDC service areas. Energy savings are rewarded at the same rate for both capital and non-capital efficiency measures, which are calculated at the whole-building level. Each facility has three one-year performance periods.

The facilities and their performance period reported in PY2020 are summarized in Table 20. The PY2020 review population includes 66 facilities, representing all facilities that were technically reviewed and invoiced in time for reporting. The results for EPP include the most recent performance period that has been reviewed for all facilities. This includes five facilities that had not been previously reported. The remaining 61 facilities had their first and second performance years reported in previous evaluation reports.

*Table 20: EPP Facilities Reported in PY2020*

Performance Year in PY2020	Facilities Reported in PY2020	Facilities Reported for First Time
Year 1	5	5
Year 2	-	-
Year 3	61	-

## 5.1 EPP GROSS ESTIMATED RESULTS

Total estimated gross savings from the PY2020 review of the EPP program are summarized in Table 21. The program achieved 3,154 MWh, representing 100% of reported savings. Summer peak demand savings were not required to be tracked or verified by the program design. As such, no demand savings are reported.

Table 21: PY2020 EPP Gross Estimated Savings Results

Program Year	Facilities Reported	Energy Realization Rate %	Gross Estimated First Year Energy Savings (MWh)	Gross Estimated Peak Demand Savings (MW)
2020	66	100.0%	3,154	NA
2019	136	100.0%	30,827	NA
2018	72	100.0%	12,894	NA

## 5.2 EPP NET ESTIMATED RESULTS

Total net estimated energy savings for EPP included in PY2019 is 2,365 MWh, 75% of gross estimated savings. Historically, interview responses suggested that while the EPP enabled participants to expand the scope and depth of the energy efficiency projects being implemented, at least some portion of these changes would have been made even if they did not participate in EPP.

There were 14 facilities in PY2020 that showed increased consumption in their performance periods. Two of these facilities were in their first year of performance. The evaluation team assigned facilities with increased consumption in their first performance year an EUL of one year as EPP is designed to encourage savings over multi-year performance periods participants are expected to create an implementation plan to correct their course and achieve savings.

The average net estimated energy savings per facility is 36 MWh for facilities reported in PY2020. The highest performing facility achieved 165 MWh net energy savings while the lowest achieved -108 MWh. With around half the number of facilities being reported than in PY2019, total net energy savings decreased 90% in PY2020.

Table 22: PY2020 EPP Net Estimated Savings Results

Program Year	Facilities Reported	Energy NTG Ratio (%)	Net Estimated First Year Energy Savings (MWh)	Net Estimated 2020 Energy Savings (MWh)	Net Estimated Summer Peak Demand Savings (MW)	Net Estimated 2020 Summer Peak Demand Savings (MW)
2020	66	NA	2,365	2,365	NA	NA
2019	136	75.00%	23,120	23,695	NA	NA
2018	72	75.00%	9,671	9,671	NA	NA

### 5.3 EPP INCREMENTAL FRAMEWORK SAVINGS (2015-2020)

Total net estimated first year energy savings for EPP in the CFF from 2015 to 2020 are 43.1 GWh as summarized in Table 23. The savings in this section are derived from all facilities reported so far throughout the framework, including true up facilities. Incremental program savings were growing year to year since PY2017 until project implementation was negatively affected by the COVID-19 pandemic in PY2020. One hundred percent of CFF EPP energy savings persist to 2020.

Table 23: PY2015 to PY2020 EPP Incremental Net Savings

Program Year	2015	2016	2017	2018	2019	2020	Total
Net Estimated First Year Energy Savings (GWh)	-	-	7.9	9.7	23.1 <sup>6</sup>	2.4	43.1
Net Estimated 2020 Energy Savings (GWh)	-	-	7.9	9.7	23.7	2.4	43.7
Net Estimated Summer Peak Demand Savings (MW)	-	-	-	-	-	-	-
Net Estimated 2020 Summer Peak Demand Savings (MW)	-	-	-	-	-	-	-

### 5.4 EPP COST EFFECTIVENESS (2015-2020)

As shown in Table 24, EPP is cost effective from both the TRC and PAC test perspectives using a benefit/cost threshold of 1.0. The cost effectiveness of the program in PY2020 was affected by decreased participation as the framework winds down.

Table 24: EPP Cost Effectiveness Results (2015-2020)

Cost Benefit Ratio	2015	2016	2017	2018	2019	2020	Total
TRC	-	-	-	1.04	1.07	0.41	1.03
PAC	-	-	-	3.26	4.67	0.56	3.60
LUEC	-	-	-	0.01	0.01	0.09	0.01

<sup>6</sup> Four facilities with negative savings (increased consumption) in their first reported performance years were given an EUL of 1. EPP is designed to reach savings goals over a two year period and it is expected the facilities will improve their savings performance in the next performance period. As such, the 2020 savings for these facilities is zero until their actual second performance year is reported.

## Appendix A Portfolio Results Summary Table

Table 25 summarizes the savings achieved by the industrial portfolio and EPP in PY2020, including true up projects. These savings represent the incremental savings reported in PY2020.

Table 25: PY2020 Portfolio Results Summary

Program/ Implementation Year	Projects Reported	Energy RR	Gross Estimated Energy Savings (MWh)	Demand RR	Gross Estimated Summer Peak Demand Savings (MW)	Energy NTG Ratio	Net Estimated First Year Energy Savings (MWh)	Net Estimated 2020 Energy Savings (MWh)	Net Estimated Summer Peak Demand Savings (MW)
<b>Process &amp; Systems Upgrades (PSUP)</b>									
2020	-	-	-	-	-	-	-	-	-
2019 True Ups <sup>7</sup>	13	100.1%	9,460	107.7%	1.57	81.8%	7,738	7,738	1.28
2018 True Ups	3	100.1%	4,285	107.7%	0.70	81.8%	3,505	3,505	0.57
<b>Total PSUP</b>	<b>16</b>	<b>100.1%</b>	<b>13,745</b>	<b>107.7%</b>	<b>2.27</b>	<b>81.8%</b>	<b>11,243</b>	<b>11,243</b>	<b>1.84</b>
<b>Energy Manager Non-Incended (EM)</b>									
2020	27	98.4%	2,109	108.5%	0.06	77.2%	1,628	1,628	0.05
2019 True Ups	75	98.4%	6,383	108.5%	1.54	77.2%	4,927	4,743	1.23
2018 True Ups	10	98.4%	1,951	108.5%	0.10	77.2%	1,506	1,413	0.08
<b>Total EM</b>	<b>112</b>	<b>98.1%</b>	<b>10,442</b>	<b>108.2%</b>	<b>1.71</b>	<b>77.2%</b>	<b>8,062</b>	<b>7,784</b>	<b>1.37</b>
<b>Monitoring and Targeting (M&amp;T)</b>									

<sup>7</sup> True up projects went into service in 2018 and before under the CFF but were not included in previous evaluations as the technical review process had not been completed in time for reporting.

Program/ Implementation Year	Projects Reported	Energy RR	Gross Estimated Energy Savings (MWh)	Demand RR	Gross Estimated Summer Peak Demand Savings (MW)	Energy NTG Ratio	Net Estimated First Year Energy Savings (MWh)	Net Estimated 2020 Energy Savings (MWh)	Net Estimated Summer Peak Demand Savings (MW)
2020	-	-	-	-	-	-	-	-	-
2017 True Ups	1	100.0%	2,095	100.0%	0.20	100.0%	2,095	-	0.20
<b>Total M&amp;T</b>	<b>1</b>	<b>100.0%</b>	<b>2,095</b>	<b>100.0%</b>	<b>0.20</b>	<b>100.0%</b>	<b>2,095</b>	<b>0</b>	<b>0.20</b>
<b>IAP Initiative</b>									
2020	2	103.4%	962	99.2%	0.15	85.3%	820	820	0.13
2019	4	104.0%	1,080	109.8%	0.15	85.7%	925	925	0.13
2018 True Ups	14	102.3%	6,075	104.5%	0.75	84.4%	5,129	5,159	0.65
2017 True Ups	5	101.0%	2,841	103.4%	0.30	97.0%	2,755	660	0.29
<b>Total IAP</b>	<b>25</b>	<b>102.2%</b>	<b>10,958</b>	<b>104.2%</b>	<b>1.35</b>	<b>87.9%</b>	<b>9,629</b>	<b>7,534</b>	<b>1.20</b>
<b>Energy Performance Program</b>									
2020 YR1 Performance <sup>8</sup>	5	100.0%	119	-	-	75.0%	89	89	-
2020 YR3 Performance	61	100.0%	3,035	-	-	75.0%	2,277	2,277	-
<b>Total EPP</b>	<b>66</b>	<b>100.0%</b>	<b>3,154</b>	<b>NA</b>	<b>NA</b>	<b>75.0%</b>	<b>2,365</b>	<b>2,365</b>	<b>NA</b>
<b>GRAND TOTAL</b>	<b>219</b>	<b>100.2%</b>	<b>38,299</b>	<b>107.0%</b>	<b>5.33</b>	<b>81.7%</b>	<b>31,299</b>	<b>28,927</b>	<b>4.41</b>

<sup>8</sup> The PY2020 EPP results are separated by the performance period that is being reported. Facilities that are reporting Year 3 savings began performance periods in PY2017 and PY2018.

