

Commonwealth Edison Company's 2018 – 2021 Energy Efficiency and Demand Response Plan

ComEd[®]
Energy
Efficiency
Program

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Table of Contents

1. Executive Summary	5
2. Introduction.....	15
3. Plan Overview	17
Key Statutory Requirements.....	20
<i>ComEd Manages the Entire Portfolio</i>	<i>20</i>
<i>Elimination of IPA Energy Efficiency</i>	<i>21</i>
<i>Cumulative Persisting Annual Savings Goals</i>	<i>21</i>
<i>Performance Adjustment / AAIG</i>	<i>22</i>
<i>Program Years/Plan Cycles</i>	<i>22</i>
<i>Large Customer Exemption.....</i>	<i>22</i>
<i>Income-Eligible Customers.....</i>	<i>23</i>
<i>Public Sector.....</i>	<i>24</i>
<i>Third-Party Program</i>	<i>24</i>
<i>Voltage Optimization</i>	<i>25</i>
<i>Demand Response.....</i>	<i>25</i>
<i>Total Resource Cost Test.....</i>	<i>26</i>
<i>Cost Recovery</i>	<i>26</i>
<i>Non-Electricity Energy Savings</i>	<i>27</i>
<i>Emerging Technology / Research & Development</i>	<i>27</i>
Challenges.....	28
<i>Impact of the EISA Lighting Standard</i>	<i>28</i>
<i>Life of Measures</i>	<i>29</i>
<i>Program Coordination and Natural Gas Plan Budgets</i>	<i>30</i>
Opportunities	31
<i>Income-Eligible Customers.....</i>	<i>31</i>
<i>Public Sector Customers.....</i>	<i>33</i>
<i>Public Housing Customers</i>	<i>35</i>
<i>R&D / Emerging Technologies / Building Codes.....</i>	<i>36</i>
<i>Third-Party Programs</i>	<i>38</i>
<i>Community Energy Management.....</i>	<i>39</i>
4. ComEd's Planning Process.....	41
Key Planning Enhancements	42
<i>End-Use Baseline Study.....</i>	<i>42</i>
<i>Market Potential Study</i>	<i>43</i>
<i>DSMore Model.....</i>	<i>43</i>
<i>Stakeholder Input</i>	<i>44</i>
<i>Electric / Gas Integration</i>	<i>45</i>
5. The ComEd Portfolio	48
Portfolio Design	48
Portfolio Elements.....	56
<i>Residential Program Elements</i>	<i>56</i>
<i>Income-Eligible Program Elements</i>	<i>103</i>
<i>Business Program Elements</i>	<i>125</i>

<i>Voltage Optimization & Third Party Program Elements</i>	192
<i>Demand Response Program Element</i>	196
<i>Market Transformation</i>	199
<i>Energy Insights Online</i>	202
<i>Energy Usage Data System</i>	203
<i>Smart Meter Connected Devices</i>	204
Education & Outreach	206
<i>Customer Engagement Process</i>	207
<i>Awareness Strategy</i>	207
<i>Behavioral Waste Focus</i>	209
Cross-Cutting Activities	210
<i>Portfolio Management</i>	210
<i>Market Research</i>	215
<i>Tracking & Reporting</i>	216
<i>Risk Management</i>	216
<i>ComEd's Risk Management Process</i>	217
<i>Portfolio Budget</i>	218
<i>Portfolio Evaluation</i>	220
6. Cost Recovery	229

Appendices

Appendix A: Portfolio Analysis and Development

Appendix B: List of Measures by Program

Appendix C: Illinois Statewide Technical Reference Manual v6.0

Appendix D: Illinois Energy Efficiency Policy Manual

Appendix E: Energy Efficiency Potential Study, 2017-2030

1. Executive Summary

Commonwealth Edison Company (“ComEd”) submits its 2018 – 2021 Energy Efficiency and Demand Response Plan (“Plan” or “Plan 5”) to the Illinois Commerce Commission (“Commission” or “ICC”) in accordance with Section 8-103B of the Public Utilities Act (“Act” or “PUA”). This Plan is ComEd’s fifth energy efficiency and demand response plan,¹ and covers the four-year period of January 1, 2018, through December 31, 2021. Prior to the filing of this Plan, and since June 1, 2008, ComEd has administered energy efficiency programs to retail customers in its service territory in accordance with Section 8-103 of the Act.

Plan 5 reflects the new world of energy efficiency in Illinois. On June 1, 2017, Public Act 99-0906 became effective, which includes a variety of new and amendatory provisions to the PUA and the Illinois Power Agency (“IPA”) Act. Among these changes are substantial revisions to the design and implementation of energy efficiency programs in Illinois. With the provisions of Public Act 99-0906 now in effect, ComEd’s energy efficiency efforts have undergone numerous changes, as highlighted below.

Energy Efficiency Consolidated under Single Utility Portfolio. Importantly, Public Act 99-0906 sunsets the energy efficiency requirements that have been applicable to

¹ ComEd’s first four Plans were triennial plans, each composed of essentially three one-year plans. However, under the provisions of Public Act 99-0906, which took effect June 1, 2017, Plan 4 was never implemented. Instead, Plan 3 is extended until December 31, 2017, and this Plan 5 will take effect January 1, 2018. See 220 ILCS 5/8-103(l)(1); see also *Ameren Illinois Co. d/b/a Ameren Illinois, et al.*, ICC Docket No. 17-0212, Final Order (June 1, 2017).

electric utilities and the IPA under Sections 8-103 and 16-111.5B of the Act. New Section 8-103B of the PUA replaces these Sections, and charges electric utilities like ComEd with designing, overseeing, and managing the entire portfolio energy savings goal and budget to serve all customer segments, including low-income (or “income-eligible”) and public sector customers. This is markedly different from previous plans.

Implementation of Cumulative Persisting Annual Savings Goals. The energy savings goals applicable to ComEd under this Plan will now be measured cumulatively. Per Section 8-103B, ComEd’s annual energy savings goals will be based on cumulative persisting annual savings (“CPAS”). The CPAS methodology calculates the total electric energy savings achieved in a given year from measures installed in that year and in previous years, but no earlier than January 1, 2012, that are still operational and providing savings in that year (because the measures have not yet reached the end of their useful lives). The CPAS methodology is a new concept for energy efficiency in Illinois, and emphasizes a shift to valuing the lifetime savings of the measure versus only the first year savings, which was the focus of the prior energy efficiency framework. To accommodate this shift, moreover, Section 8-103B also sets the value of “legacy savings” attributable to measures installed prior to January 1, 2018 (but after January 1, 2012) that are still providing savings in the applicable year. These legacy savings will be applied by the utilities toward their CPAS goals.

Performance Adjustment. Section 8-103B establishes a new performance mechanism that increases or decreases the return on equity component of ComEd’s weighted average cost of capital depending on the extent to which we exceed or fall

short of the applicable annual incremental goal (“AAIG”) for a given year. The AAIG is a different measurement than CPAS, and is defined by statute as “the difference between the cumulative persisting annual savings goal for the calendar year that is the subject of the independent evaluator’s determination and the cumulative persisting annual savings goal for the immediately preceding calendar year.” 220 ILCS 5/8-103B(g)(7.5). In other words, the AAIG measures the amount of energy savings that ComEd achieved in an individual year. The AAIG measure is also used in the determination of the amount of non-electric energy savings that can be counted.

Calendar Year Planning Cycle. In addition to establishing new energy savings goals and programs, Section 8-103B also switches the planning or program year from the current June 1 to May 31 cycle to a calendar year cycle, starting January 1, 2018, and extends the planning / program year to four years (for Plan 5) versus the previous three year cycle under Section 8-103 plans.

New Cost Recovery Mechanism. Section 8-103B also permits electric utilities to implement a new energy efficiency formula rate cost recovery mechanism. As discussed in this Plan, ComEd’s Rider EEPP – Energy Efficiency Pricing and Performance (“Rider EEPP”) – allows ComEd to amortize its energy efficiency expenses, reducing the annual cost impact of the programs on customers. Approval of Rider EEPP is currently pending before the Commission in ICC Docket No. 17-0287.

Income-Eligible and Public Sector Programs. As noted above, ComEd now has responsibility for delivering programs for the low-income (“income-eligible”) sector (minimum annual expenditures of \$25 million) and the public sector (10% of the portfolio

budget). Previously, the Illinois Department of Commerce and Economic Opportunity (“DCEO” or the “Department”) implemented measures and programs for these customer segments.

Voltage Optimization. This Plan also includes, for the first time, a Voltage Optimization (“VO”) program. Section 8-103B recognizes VO as an energy efficiency measure that contributes towards the achievement of CPAS goals.

Stakeholder Collaboration and Contemplated Stipulation. In addition to the many new changes highlighted above and further discussed below, this Plan, as with prior Plans, represents the culmination of an extensive planning process that involved Illinois stakeholders over six months. During this process, a number of challenges, positions, and opportunities were presented and discussed. As part of this Plan’s development, we have engaged in extensive negotiations with several of the key stakeholders that participate in the Stakeholder Advisory Group (“SAG”). Over the past several months, the parties to these negotiations addressed a number of key components of the Plan, and it is our understanding that the Plan reflects consensus among these parties. While the parties had hoped to finalize their agreement prior to the filing of the Plan, it was not possible to finalize the Plan in time for the parties to review it and execute the agreement prior to filing. Nevertheless, we expect the parties to execute an agreement reflecting this consensus shortly after the filing of the Plan. Key elements of this agreement include:

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- **Statutory Goals:** ComEd has committed to meeting each of the annual statutory CPAS savings goals for each year of the Plan, while also laying a foundation to enable it to meet future Plan targets.
 - **Income-Eligible Programs:** While the law requires that a minimum of \$25 million per year be allocated towards income-eligible programs, ComEd also understands the unique needs of this customer segment. ComEd has committed to spend an average of \$42.2 million per year on this customer segment through income-eligible specific programs, including public housing allocations and portfolio administration costs allocated to the income-eligible sector. In addition, ComEd commits to spending an average of an additional \$6 million per year towards the income-eligible sector through a combination of third-party program expenditures and research and development (“R&D”) expenditures. Lastly, the contemplated agreement contains several income-eligible program design features, including the leveraging of existing income-eligible program implementers, and commitments regarding interactions with the Income-Eligible Advisory Committee in which ComEd has participated.
 - **Advanced Program Approaches:** ComEd has committed to explore specific program design features, including: (1) for the smart thermostat program, the development of a single rebate application, instant discount, or midstream offering; (2) the development of an expanded residential income-eligible, all-electric multi-family program that includes a bulk purchase of ductless heat pumps and that is cost effective; (3) the delivery of a pilot upstream offering for

commercial kitchen equipment; and (4) closely monitoring the public sector incentive levels to determine if the levels are sufficient to achieve the required level of public sector spending.

- **Third-Party Programs:** ComEd commits to working with interested stakeholders during 2018 on the development of the request-for-proposal (“RFP”) for the statutorily-required third-party programs for years 2019-2021.
- **R&D / EM&V and AMI:** ComEd agrees to work with interested stakeholders on the development of EM&V approaches and pilot R&D projects to effectively leverage the value of advanced metering infrastructure (“AMI”) data.
- **Independent Evaluator, SAG Facilitator, and Illinois Technical Reference Manual (“TRM”) Administrator Independence:** For the independent evaluator, the SAG Facilitator, and the IL-TRM Administrator, ComEd agrees to work with the other electric and gas utilities that participate in the SAG to develop and implement protocols that ensure each group’s independence is maintained.

Ultimately, the outcome of these efforts and stakeholder consensus is a Plan that achieves all statutory requirements, exceeds the statutory requirement for income-eligible program funding by approximately 60% of the minimum, and reinforces ComEd’s commitment to new technologies and innovative approaches, including smart thermostats, voltage optimization, and community-based programming.

The following table provides, for each calendar year (“CY”), the statutory megawatt-hour (“MWh”) CPAS goal, the legacy savings, the AAIG, in MWh, the demand response

megawatt (“MW”) goal, and the annual budget, which has been established in accordance with the statutory budget calculation set forth in Section 8-103B(m).

TABLE 1 - FOUR YEAR GOALS / BUDGET²

Item	2018	2019	2020	2021
Statutory CPAS (Percent)	7.8%	9.1%	10.4%	11.8%
Statutory CPAS (MWh)	6,137,492	7,160,408	8,183,323	9,284,924
Legacy Savings (Percent)	5.8%	5.2%	4.5%	4.0%
Legacy Savings (MWh)	4,563,776	4,091,662	3,540,861	3,147,432
Applicable Annual Incremental Goal (MWh)	944,230	1,022,915	1,022,915	1,101,601
Demand Response Goal (MW)	7.58	8.25	8.25	8.21
Annual Budget	\$351.6	\$351.6	\$351.6	\$351.6

As required by the statute, the portfolio (not including income-eligible programs) must be cost-effective, based on the Total Resource Cost (“TRC”) test. ComEd’s portfolio TRC is 2.77. The portfolio is designed to achieve the statutory CPAS goals within the annual budgets. The portfolio is also designed to meet the annual statutory MW demand response goals for each year.

² As explained in Section 3 of this Plan, Section 8-103B requires that ComEd’s largest customers be excluded from participation in or funding of the Plan. Because the final determination of the exempt customer group cannot be made until after December 31, 2017 (see 220 ILCS 5/8-103B(l)), ComEd will submit a compliance filing to the Commission in February 2018 that identifies the final CPAS, legacy, budget, and AAIG values. As a result, the CPAS, legacy, budget, and AAIG values presented in this Plan are initial values and subject to change based on the final exempt customer group calculation.

ComEd's portfolio serves five primary customer groups. Four of these building blocks focus on specific customer groups or activities, make up the majority of the budget, and account for the projected achievement of the applicable CPAS goals. The fifth group, Education and Outreach / Market Transformation, is more general in nature, cuts across all customer classes, and is intended to provide support across the entire portfolio. The five groups are:

- Residential customers
- Income-eligible customers (sometimes referred to as "Low Income")
- Business customers (also referred to as "Commercial and Industrial" or "C&I")
- Public Sector customers, a segment of business customers
- Education and Outreach / Market Transformation Activities

Residential customers, including income-eligible customers, will be offered a suite of program elements that provide a number of opportunities for them to participate in the portfolio. We also will offer a variety of diverse opportunities to participate in the portfolio for C&I and public sector customers.

The projected impacts and costs of the programs are shown in the tables on the following pages.

TABLE 2 - COST BREAKDOWN BY PROGRAM AND YEAR

Programs	CY 2018 Cost	CY 2019 Cost	CY 2020 Cost	CY 2021 Cost	4 Year Plan Cost
Residential - EE Programs					
Residential Behavior	\$7,276,250	\$6,683,156	\$6,390,235	\$6,397,491	\$26,747,132
Lighting Discounts	\$29,628,322	\$20,374,890	\$19,902,463	\$19,642,036	\$89,547,711
Appliance Rebates	\$15,293,699	\$16,285,076	\$17,063,505	\$17,626,105	\$66,268,385
Fridge & Freezer Recycling	\$8,702,138	\$8,741,973	\$8,781,917	\$8,821,974	\$35,048,000
Single-Family Assessments	\$9,623,742	\$9,507,614	\$9,501,034	\$9,585,414	\$38,217,804
Multi-Family Assessments	\$4,051,681	\$4,056,311	\$4,060,795	\$4,065,392	\$16,234,180
Residential HVAC & Weatherization	\$7,839,466	\$7,904,203	\$7,991,560	\$8,106,305	\$31,841,535
Elementary Education	\$741,983	\$743,077	\$744,198	\$745,347	\$2,974,606
Residential New Construction	\$392,065	\$393,159	\$394,280	\$395,429	\$1,574,934
NTC Middle School Kits	\$664,083	\$0	\$0	\$0	\$664,083
RESIDENTIAL TOTAL	\$84,213,429	\$74,689,459	\$74,829,988	\$75,385,494	\$309,118,370
Income Eligible - EE Programs					
Lighting Discounts - IE	\$4,468,130	\$3,861,735	\$4,062,446	\$4,563,234	\$16,955,545
Single Family Retrofits – IE	\$11,649,080	\$11,643,470	\$11,638,436	\$11,649,021	\$46,580,008
Multi Family Retrofits – IE	\$8,250,848	\$8,255,223	\$8,259,707	\$8,264,304	\$33,030,082
Affordable Housing New Construction	\$2,662,348	\$2,930,445	\$3,224,795	\$3,553,078	\$12,370,666
Food Bank-LED Distribution	\$3,214,478	\$0	\$0	\$0	\$3,214,478
UIC-ERC Low Income Kits	\$3,154,244	\$0	\$0	\$0	\$3,154,244
Third Party Income Eligible	\$0	\$6,000,000	\$6,000,000	\$6,000,000	\$18,000,000
Income Eligible Outreach	\$2,000,000	\$1,500,000	\$1,500,000	\$1,500,000	\$6,500,000
INCOME ELIGIBLE TOTAL	\$35,399,128	\$34,190,873	\$34,685,384	\$35,529,637	\$139,805,023
Business - EE Programs					
Incentives	\$56,906,019	\$56,897,783	\$53,051,721	\$54,470,460	\$221,325,983
Small Business	\$46,340,924	\$44,005,709	\$45,256,804	\$46,404,085	\$182,007,522
Business Instant Discounts	\$16,345,016	\$15,966,264	\$14,033,914	\$12,744,575	\$59,089,770
AC Tuneup	\$4,715,000	\$4,936,407	\$5,183,448	\$5,447,318	\$20,282,173
Non-Res New Construction	\$9,676,738	\$10,059,332	\$10,597,900	\$10,972,801	\$41,306,771
Industrial Systems	\$5,483,544	\$5,753,036	\$5,971,206	\$6,123,651	\$23,331,437
RetroCommissioning	\$8,105,642	\$8,291,934	\$8,419,942	\$8,488,839	\$33,306,357
Strategic Energy Management	\$2,189,000	\$2,193,375	\$2,197,859	\$2,202,456	\$8,782,690
LED Streetlighting	\$24,212,862	\$22,987,612	\$25,221,960	\$19,519,192	\$91,941,627
Facility Assessments	\$1,887,500	\$1,911,563	\$1,936,225	\$1,961,508	\$7,696,795
Public Housing Retrofits	\$2,190,127	\$2,194,502	\$2,198,986	\$2,203,583	\$8,787,198
Rural Small Business Kits	\$867,198	\$0	\$0	\$0	\$867,198
Power TakeOff	\$1,125,757	\$0	\$0	\$0	\$1,125,757
Business Sector Outreach	\$4,650,000	\$3,150,000	\$3,150,000	\$3,150,000	\$14,100,000
BUSINESS TOTAL	\$184,695,327	\$178,347,517	\$177,219,967	\$173,688,467	\$713,951,279
VO & Third Party EE Programs					
Third Party Programs	\$0	\$19,000,000	\$19,000,000	\$19,000,000	\$57,000,000
Voltage Optimization	\$0	\$0	\$0	\$0	\$0
VO & THIRD PARTY TOTAL	\$0	\$19,000,000	\$19,000,000	\$19,000,000	\$57,000,000
Demand Response					
Demand Response	\$1,100,000	\$1,261,000	\$1,437,000	\$1,612,000	\$5,410,000
Market Transformation					
Market Transformation	\$1,600,000	\$1,600,000	\$1,600,000	\$1,600,000	\$6,400,000
EIO / EDS	\$500,000	\$500,000	\$500,000	\$500,000	\$2,000,000
Smart Meter Connected Devices	\$751,000	\$443,900	\$443,900	\$443,900	\$2,082,700
MARKET TRANSFORMATION TOTAL	\$2,851,000	\$2,543,900	\$2,543,900	\$2,543,900	\$10,482,700
Portfolio Level Costs					
Portfolio Level Costs	\$43,374,996	\$41,601,132	\$41,917,642	\$43,874,382	\$170,768,152
PORTFOLIO TOTAL	\$351,633,881	\$351,633,881	\$351,633,881	\$351,633,881	\$1,406,535,524

TABLE 3 - CPAS SAVINGS BREAKDOWN BY PROGRAM AND YEAR

Programs	2018 CPAS Energy Savings (MWh)	2019 CPAS Energy Savings (MWh)	2020 CPAS Energy Savings (MWh)	2021 CPAS Energy Savings (MWh)	4-Year CPAS Energy Savings (MWh)
Residential - EE Programs					
Residential Behavior	275,502	275,501	275,501	275,502	275,502
Lighting Discounts	156,198	250,856	344,258	393,249	393,249
Appliance Rebates*	132,134	280,167	441,079	611,091	611,091
Fridge & Freezer Recycling	21,703	43,405	65,108	86,810	86,810
Single-Family Assessments*	20,754	41,508	61,387	69,973	69,973
Multi-Family Assessments	9,197	18,394	27,584	27,361	27,361
Residential HVAC & Weatherization*	10,612	21,254	31,948	42,712	42,712
Elementary Education*	4,650	9,571	14,477	15,089	15,089
Residential New Construction	571	1,141	1,712	2,283	2,283
NTC Middle School Kits	1,267	1,369	1,456	1,131	1,131
RESIDENTIAL TOTAL	632,588	943,168	1,264,509	1,525,202	1,525,202
Income Eligible - EE Programs					
Lighting Discounts - IE	16,494	29,265	42,849	53,359	53,359
Single Family Retrofits – IE*	17,226	34,452	51,384	67,737	67,737
Multi Family Retrofits – IE*	19,494	38,989	58,425	74,715	74,715
Affordable Housing New Construction	1,222	2,566	4,046	5,677	5,677
Food Bank-LED Distribution	15,241	18,222	20,778	7,123	7,123
UIC-ERC Low Income Kits	9,012	10,098	11,028	7,076	7,076
Third Party Income Eligible	-	20,000	40,000	60,000	60,000
Income Eligible Outreach	-	-	-	-	-
INCOME ELIGIBLE TOTAL	78,689	153,592	228,510	275,686	275,686
Business - EE Programs					
Incentives	313,333	633,334	933,766	1,240,731	1,240,731
Small Business	172,007	330,686	487,099	647,842	647,842
Business Instant Discounts	230,514	462,933	673,665	842,435	842,435
AC Tuneup	28,950	58,058	85,298	100,114	100,114
Non-Res New Construction	28,613	58,297	88,967	120,638	120,638
Industrial Systems	25,931	53,206	79,407	105,976	105,976
RetroCommissioning	30,044	60,233	90,886	121,814	121,814
Strategic Energy Management	27,978	55,955	83,933	83,933	83,933
LED Streetlighting	95,020	187,869	287,668	354,132	354,132
Facility Assessments	1,654	1,654	1,654	1,654	1,654
Public Housing Retrofits	1,826	3,651	5,476	6,154	6,154
Rural Small Business Kits	931	1,120	1,282	1,072	1,072
Power TakeOff	2,855	2,855	2,331	2,331	2,331
Public Sector Outreach	-	-	-	-	-
BUSINESS TOTAL	959,656	1,909,852	2,821,431	3,628,824	3,628,824
VO & Third Party EE Programs					
Third Party Programs	-	63,333	126,667	190,000	190,000
Voltage Optimization	82,500	282,500	492,500	752,500	752,500
VO & THIRD PARTY TOTAL	82,500	345,833	619,167	942,500	942,500
Demand Response					
Demand Response	-	-	-	-	-
Market Transformation					
Market Transformation	-	-	-	-	-
EIO / EDS	-	-	-	-	-
Smart Meter Connected Devices	-	-	-	-	-
MARKET TRANSFORMATION TOTAL	-	-	-	-	-
Portfolio Level Savings					
ComEd Programs Subtotal	1,753,432	3,352,445	4,933,617	6,372,212	6,372,212
Therm Conversion Excess	39,981	85,942	141,922	197,879	197,879
TOTAL COMED EE AND DR PROGRAM	1,713,451	3,266,504	4,791,695	6,174,333	6,174,333

* Denotes that the program contributes to electricity savings converted from therms

2. Introduction

ComEd submits Plan 5 to the Commission in compliance with newly-enacted Section 8-103B of the Act. As discussed above, Public Act 99-0906, also known as the Future Energy Jobs Act (“FEJA”), introduces several major changes to the PUA that transform how ComEd designs, implements, and reports energy efficiency activities, starting with this Plan.

The provisions of Section 8-103B require ComEd to have one of the largest energy efficiency portfolios in the country, with aggressive energy savings goals that will be challenging to achieve. The overall intent of new Section 8-103B is to achieve CPAS of 21.5% by 2030. We are confident that, working with our stakeholder community, we have developed a Plan that demonstrates an ability to achieve this and all other statutory goals for the life of this Plan while building a foundation for future success.

Since 2008, we have offered a growing portfolio of energy efficiency programs and services to our residential and C&I customers, and these efforts have allowed our customers to save over \$2.45 billion on their electric bills to date. This Plan builds on our previous efforts and successes in the energy efficiency context by continuing successful programs, adding new programs, developing outreach efforts that target new customer segments (*e.g.*, income-eligible and public sector), adding exciting, new technologies to the portfolio (*e.g.*, voltage optimization and smart thermostats), and achieving all of the statutory requirements set forth in Section 8-103B. This Plan sets

out how all of the statutory goals, including the aggressive new CPAS goals in Section 8-103B, will be achieved.

3. Plan Overview

Plan 5 is designed to address and balance the multiple statutory requirements laid out in Section 8-103B(g) of the PUA, which include the following:

- Achieve the statutory CPAS goals while not exceeding the statutory budgets for each of the four years of the Plan, and demonstrate that the proposed energy efficiency measures will achieve the applicable requirements (*i.e.*, savings targets).
- Present specific proposals to implement new building and appliance standards that have been placed into effect.
- Demonstrate that ComEd's portfolio is cost-effective using the TRC test, excluding the income-eligible programs; however, individual measures need not be cost-effective.³
- Present a diverse portfolio that provides a cross-section of opportunities for customers of all rate classes, other than customers who are exempt from the Plan,⁴ to participate.
- Present a third-party energy efficiency implementation program that will provide,

³ See 220 ILCS 5/8-103B(g)(3) (providing that "[i]ndividual measures need not be cost effective").

⁴ Any retail customer account that had a 30-minute electric demand greater than 10 MW at any time during the twelve monthly billing periods prior to January 1, 2018, is automatically exempted from funding of and participation in the Plan. See 220 ILCS 5/8-103B(l).

beginning January 1, 2019, funding of at least \$25 million per year, subject to an RFP process, performance terms and conditions, and Commission approval.

- Provide programs for income-eligible customers funded at a minimum of \$25 million per year.⁵
- Present a Plan that demonstrates that 10% of the portfolio budget will be allocated towards public sector customers.
- Implement cost-effective demand response measures to reduce peak demand by 0.1% over the prior year for eligible retail customers and customers that elect hourly service from ComEd.
- Include a proposed or revised cost-recovery tariff mechanism.
- Provide for the independent evaluation of portfolio cost-effectiveness, as well as a full review of the multi-year Plan results of the broader net program impacts. Such independent evaluation will influence, to the extent practicable, future adjustment of measures. The resources for such evaluation shall not exceed 3% of the portfolio budget in any year.
- Provide for adjustment to ComEd's return on equity component of its weighted average cost of capital that is calculated under Rider EEPP.

⁵ Section 8-103B provides that low-income households are those households at or below 80% of area median income. See 220 ILCS 5/8-103B(c).

- Allocate no more than 6% of the portfolio budget for research, development, or pilot deployment of new technology platforms or innovative approaches.

Our analysis of the costs to acquire energy efficiency savings demonstrates that the statutory CPAS targets applicable to ComEd during this Plan can be met within the statutory budgets. We have therefore balanced the program mix such that the entire cost of the portfolio is within the overall budget.

TABLE 4 – ACHIEVING THE FOUR YEAR GOALS

Savings	2018	2019	2020	2021
Statutory CPAS Goal - MWH	6,137,492	7,160,408	8,183,323	9,284,924
Legacy Savings - MWH	4,563,776	4,091,662	3,540,861	3,147,432
CPAS to Achieve - MWH	1,573,716	3,068,746	4,642,462	6,137,492
Program CPAS - MWH	1,713,451	3,266,504	4,791,695	6,174,333
Percent of Goal	102%	103%	102%	100%
CPAS Surplus (Shortfall)	139,735	197,757	149,233	36,841

Section 8-103B also requires specific allocations of the portfolio budget for income-eligible and public sector customers. As previously stated, the allocation for income-eligible customers is a minimum of \$25 million annually. We understand the importance of energy efficiency opportunities for this critical customer segment, however, and have worked with stakeholders to provide additional support and opportunities for income-eligible customers. Through careful formation of our portfolio and discussion with stakeholders throughout the planning process, we have been able to allocate approximately 60% more funds for the income-eligible measures and programs than Section 8-103B requires, while maintaining a cost-effective portfolio and meeting our energy efficiency savings targets.

Section 8-103B also requires that 10% of the portfolio budget be allocated to public sector customers. This is a much more substantial budget than this customer segment has received in past Plans, and we have similarly been able to satisfy this requirement in this Plan.

The following table shows ComEd’s proposed allocation of funding for both of these customer sectors.

TABLE 5 - BUDGET ALLOCATIONS

Programs	CY 2018		CY 2019		CY 2020		CY 2021	
	Cost (\$M)	%						
Budget	\$ 351,633,881	100%	\$ 351,633,881	100%	\$ 351,633,881	100%	\$ 351,633,881	100%
Public Sector Share	\$ 42,886,272	12%	\$ 41,112,721	12%	\$ 41,760,666	12%	\$ 35,206,647	10%
Low Income Share	\$ 40,380,127	11%	\$ 38,778,708	11%	\$ 39,379,777	11%	\$ 40,594,764	12%

Key Statutory Requirements

FEJA and new Section 8-103B of the Act have brought significant changes to ComEd’s energy efficiency portfolio starting with this Plan. These changes dramatically affect many components of our energy efficiency portfolio going forward. Key changes are briefly discussed below.

ComEd Manages the Entire Portfolio

Beginning with the first energy efficiency plan, we shared with DCEO the duties of implementing energy efficiency measures. Specifically, 25% of the portfolio budget was allocated to DCEO to coordinate and administer the public sector, income-eligible, and market transformation energy efficiency programs. Under new Section 8-103B, we will

now manage 100% of the portfolio, which includes the design and implementation of income-eligible, public sector, and market transformation programs.

Elimination of IPA Energy Efficiency

Previously, we participated in the energy efficiency component of IPA procurement plans. Under Section 8-103B, all energy efficiency will be streamlined under the ComEd portfolio, and the IPA will no longer procure energy efficiency under its plans. IPA-funded programs managed by ComEd, such as Residential Lighting Discounts, Home Energy Reports, and Small Business Energy Savings, will be moved from the IPA procurement plans to this Plan.

Cumulative Persisting Annual Savings Goals

Perhaps the single most significant change to energy efficiency implementation in Illinois is the establishment of new CPAS goals. Previously, each year we were required to achieve an incremental energy savings target from measures installed in that year (*i.e.*, first year savings), and (with few exceptions) each year's energy savings goal was independent of prior years' achievements. The CPAS goals in Section 8-103B are designed to focus our attention on deployment of measures with persisting savings. This requires us to now consider the decay, or drop-off, of savings from measures that were previously installed but have not reached the end of their measure life, as well as the energy savings from new measures installed during each year of this Plan.

Performance Adjustment / AAIG

Section 8-103B establishes a new performance mechanism that increases or decreases the return on equity component of ComEd's weighted average cost of capital depending on the extent to which we exceed or fall short of the AAIG for a given year. The AAIG is a different measurement than CPAS, and is defined by statute as "the difference between the cumulative persisting annual savings goal for the calendar year that is the subject of the independent evaluator's determination and the cumulative persisting annual savings goal for the immediately preceding calendar year." 220 ILCS 5/8-103B(g)(7.5). In other words, the AAIG measures the amount of energy savings that ComEd achieved in an individual year. The AAIG measure is also used in the determination of the amount of non-electric energy savings that can be counted.

Program Years/Plan Cycles

Prior energy efficiency plan years began on June 1 of a given year and ended on May 31 of the following year. Beginning with this Plan, the plan year cycles shift to calendar years, with each year of the Plan beginning on January 1 and ending December 31. Also, this Plan covers a four-year period, from 2018 through 2021. Prior plans under Section 8-103 covered three-year plan cycles.

Large Customer Exemption

Section 8-103B of the Act now exempts our largest customers from the funding of and participation in the Plan. The exclusion is explicitly denoted within the statute, and provides that any retail customer account that had a 30-minute electric demand greater

than 10 MW at any time during the twelve monthly billing periods prior to January 1, 2018, is automatically exempted. See 220 ILCS 5/8-103B(l). This is a mandatory exemption for this customer group, and the Act does not contain an opt-in provision. Customer accounts that do not now qualify for exemption but whose demand later exceeds 10 MW during this Plan cycle will continue to be eligible to participate because the exemption is set at the start of a Plan cycle and is not revisited until the next Plan cycle.

Income-Eligible Customers

Section 8-103B(c) requires ComEd to allocate a minimum of \$25 million to income-eligible customers annually; these are customers whose household income is at or below 80% of the area median income.

Measures implemented under this requirement need not be cost-effective under the TRC test.

Section 8-103B(c) also requires us to establish reporting processes that demonstrate progress toward the income-eligible spend and goal.

The term "Low Income"

An early recommendation of the Advisory Committee was to minimize, if not eliminate, the use of the term "low income," as it has a negative connotation to this customer group. ComEd will use the term "income eligible" as the primary descriptor for this customer segment.

In addition to the spending, contracting, and reporting requirements, we are also required to convene an income-eligible advisory committee to provide input into the design, delivery, and evaluation of income-eligible programs. This committee is to be composed of the electric and natural gas utilities, low-income implementation contractors, and community-based organizations. The committee was convened on

April 11, 2017, as a subcommittee of the SAG, and has met three times prior to the filing of our Plan.

Public Sector

Section 8-103B(c) prescribes that a minimum of 10% of the annual energy efficiency funding level shall be used to procure cost-effective energy efficiency measures from

Public Housing

A new addition to the list of public sector categories is public housing, which must be funded at a minimum percentage that is equal to public housings' share of total public building energy consumption.

units of local government, municipal corporations, school districts, public housing, and community college districts. In prior plans, these public sector customer obligations were delegated to DCEO. With this Plan, however, these customer sectors will be addressed directly by ComEd in its portfolio.

Third-Party Program

Section 8-103B(g)(4) requires ComEd, during 2018 (*i.e.*, Year 1 of this Plan), to develop a third-party implementation program that will begin January 1, 2019 (*i.e.*, Year 2 of this Plan). We anticipate that many of the programs solicited through the RFP process we conduct will target underserved sectors or areas, or take advantage of underused delivery channels. We will develop the solicitation requirements, which include bidder qualifications, a performance measurement process, and a contract structure, and will submit these proposals to the Commission for approval, as required by Section 8-103B(g)(4)(C). Additionally, we will retain an independent third party administrator to score and rank bids submitted in response to the RFP based on cost per lifetime kWh

savings. This administrator will also assemble the third-party portfolio. The final selection of the third-party implementers will be submitted to the Commission for approval.

While the solicitation structure has yet to be developed, ComEd is required to include a projection of third-party program savings toward the overall CPAS goal as part of this Plan.

Voltage Optimization

Section 8-103B(b-20) allows ComEd to include cost-effective VO measures in the Plan, and ComEd may count the associated energy savings toward the CPAS goals for this Plan. Costs incurred to implement VO, however, will be recovered under ComEd's distribution rates and are not included within the energy efficiency budget or recovered through ComEd's related cost-recovery mechanism, Rider EEPP.

Demand Response

Section 8-103B(g)(4.5) requires that we implement cost-effective demand response measures that reduce peak demand by 0.1% over the prior year for eligible retail customers and hourly service customers. Under Section 8-103, this existing requirement expired after May 2018; however, under Section 8-103B, this requirement is now extended through December 2026.

Total Resource Cost Test

Under Section 1-10 of the IPA Act, the benefits calculation has been expanded to include the avoided costs of other fuels (in addition to natural gas), as well as the avoided cost associated with reduced water consumption and reduced operation and maintenance (“O&M”) costs. Even so, our past Plans were already including avoided fuel and water costs and O&M costs in our TRC analysis, as they have been considered “quantifiable societal benefits” as defined in the statute.

FEJA also added a societal discount rate to the TRC test, which is based on long-term treasury yields. As a result, we have discontinued our prior practice of using the ComEd weighted average cost of capital.

Cost Recovery

Under Section 8-103, ComEd recovered energy efficiency portfolio costs through a separate cost-tracking rider. Section 8-103B now allows ComEd to recover its energy efficiency expenditures into a regulatory asset and amortize those costs over a period of time that is equal to the weighted average of the energy efficiency measure lives implemented for that year that are included in the regulatory asset. This change aligns cost recovery with the period during which customers receive a benefit. Additionally, ComEd may earn a return on the unamortized balance of costs in the regulatory asset, and effect recovery through a dedicated formula rate, ComEd’s proposed Rider EEPP, which is pending before the Commission in ICC Docket No. 17-0287.

Non-Electricity Energy Savings

Section 8-103B(b-25) allows ComEd to claim non-electricity energy savings of up to 10% of each year's AAIG. The statute enables ComEd to convert the fuel savings to equivalent electric savings on an equivalent Btu basis at the premises. The following table is derived from data retrieved from the U.S. Department of Energy's ("DOE") Energy Information Administration website.⁶ These calculations represent the conversion factors for fuels that we expect to encounter most frequently.

TABLE 6 - FUEL CONVERSION TABLE

Fuel	Heat Content	Equivalent kWh
Natural Gas	100,000 BTU/therm	29.31/therm
Propane	91,333 BTU/gallon	26.77/gallon
Heating Oil (No. 2)	138,500 BTU/gallon	40.59/gallon

Emerging Technology / Research & Development

Section 8-103B recognizes the important role that emerging technologies, R&D, and the pilot deployment of new equipment and measures and delivery mechanisms will play towards achieving future year CPAS goals by doubling the budget percentage allocated by Section 8-103 to past plans. Specifically, the R&D budget can now be set up to 6% of the overall portfolio budget, or approximately \$21 million annually.

⁶ http://www.eia.gov/energyexplained/index.cfm?page=about_energy_units

Challenges

Several critical planning and implementation challenges extend over the planning horizon. How these challenges are addressed will greatly affect the shape of the portfolio and our ability to execute this Plan. We believe that clear Commission policy is necessary to resolve some of these issues. Each issue and our proposed approach are described below.

Impact of the EISA Lighting Standard

The Energy Independence and Security Act of 2007 (“EISA”) established minimum efficiencies for general service light bulbs. This legislation phased out the manufacture of incandescent bulbs between 2014 and 2016. In addition, new minimum requirements are set to take effect for omnidirectional bulbs on January 1, 2020, which could potentially eliminate halogen bulbs from the market. However, uncertainty arises on this standard because of several recent developments:

1. In January 2017, DOE issued a ruling to expand the scope of bulb types covered by the standard to include directional and specialty bulbs.
2. In March 2017, the lighting industry (through the National Electrical Manufacturers Association) appealed the ruling and called upon DOE to reopen the rulemaking.

Based on discussions with lighting manufacturers, the following planning assumptions were made:

1. The standard will only apply to omnidirectional bulbs.

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2. The standard will be set to effectively eliminate halogen bulbs from the market.
 3. The effective date will be January 1, 2020, but with a sell-through period that extends into 2020 to allow the market to clear.

The impact of these standards cuts across our entire portfolio because of the broad market for omnidirectional “A” lamps. Because of the long lifetime of light-emitting diodes (“LEDs”), the baseline scenario includes multiple bulb replacements. Based on EISA, an increase in the minimum efficiency standard will change the baseline bulb from a halogen to a compact fluorescent light (“CFL”) for the first bulb replacement after January 1, 2021 (according to IL-TRM Version 6.0, 2020 will be a transition period for the market to adjust). This baseline change nearly eliminates savings.

The largest impact of the EISA standards is in the Residential Lighting Discounts program. The Plan reflects a 2018 phase-out of omnidirectional bulbs from the Residential Lighting Discounts program. It is anticipated that the uncertainty in the EISA rule noted above will be resolved by early 2018. The need for an earlier phase-out of omnidirectional bulbs from other programs will be reviewed when the ruling is finalized.

Life of Measures

As previously explained, a very important change introduced by Public Act 99-0906 that affects Plan 5 is the introduction of the CPAS goals. Because measures installed in previous years can count towards future years’ goals, Section 8-103B thus encourages electric utilities to implement measures that have long lives and little savings decay over

time, as they help make future years' energy savings goals more attainable and deliver more lasting savings. As part of the design and implementation of this Plan, we will prioritize measures that have long lives in an effort to position the portfolio to meet future years' goals.

TABLE 7 - PORTFOLIO WEIGHTED AVERAGE MEASURE LIVES

	2018	2019	2020	2021
Weighted Average Measure Life	10.8	11.6	11.7	11.6

Program Coordination and Natural Gas Plan Budgets

Beginning in our second plan, we relied on collaboration with the local gas utilities to offer certain energy efficiency measures that could not be offered cost-effectively in an electric-only energy efficiency portfolio. For example, we were able to offer our residential customers incentives for high efficiency central air-conditioners in concert with the gas utilities, as they provided incentives for high efficiency central furnaces. We engaged our residential customers in programs that provided whole-home assessments and home retrofit incentives that improved their homes' energy performance and generated both gas and electric savings. Clearly, those types of programs would not have been cost-effective if delivered for electric savings only.

ComEd and the gas utilities also leveraged each other's delivery mechanisms to achieve implementation cost savings. The Multi-Family program, for example, prospered in our second plan because it combined the utilities' offerings.

During the implementation of our third plan, however, challenges surfaced as the gas utilities faced shrinking program budgets while our budget, particularly with the addition of the IPA programs, continued to grow. With the recent statutory changes, this budget disparity is only magnified. The issue is mitigated somewhat by new authorization for ComEd to convert some natural gas savings to equivalent kWh savings for goal achievement, which effectively enables us to offer programs that save both gas and electricity. However, this conversion ability is limited to a maximum of 10% of each year's AAIG.

In light of this, our ability to offer large-scale joint programs will continue to be challenged. In this Plan, our program designs for the Single-Family and Multi-Family Assessment programs incorporate the expectation that at least some fraction of the programs will not be jointly delivered.

Opportunities

Income-Eligible Customers

Income-eligible customers previously served by DCEO's income-eligible programs will now be served by our portfolio. Based on Section 8-103B's low-income customer definition, we estimate that 47% of our residential customers, or approximately 1.6 million households, fall into this category. We have allocated approximately \$42 million

per year for the income-eligible sector, which is an increase of more than 60% over the \$25 million required by Section 8-103B. An additional \$6 million of funds may be sourced as third-party programs or used to conduct research and develop new measures for this important customer segment.

Design of the income-eligible programs in this Plan was informed by extensive research, which included reviewing legacy DCEO low-income program evaluations, conducting a low-income market segment analysis, interviewing utilities that currently offer low-income programs, and benchmarking low-income program costs on a cents-per-kWh basis. Based on this research, and through several meetings and discussions with the Income-Eligible Advisory Committee, we have developed the following philosophy to help guide the development of the income-eligible programs:

- Use a **whole-building approach** to increase efficiency
- Explore structuring incentives to **reward higher levels of efficiency**
- Offer programs that benefit **owners and renters**
- Offer customers **multiple ways to participate**
- Include **customer education** in every program
- **Leverage sources of funding** for health & safety improvements or measures not covered by the utility (e.g., Illinois Home Weatherization Assistance Program)
- **Partner with organizations** already working with targeted populations

-
- **Strengthen Communities** not just by weatherizing homes but also by supporting the community as a whole (e.g., hiring people from the community)

We believe that this is a holistic approach to the design and delivery of energy efficiency programs to income-eligible customers and the communities in which they live. We look forward to continuing the discussion with the Income-Eligible Advisory Committee to design and evaluate income-eligible energy efficiency programs.

Public Sector Customers

Public sector customers will now be served by ComEd's portfolio. These customers were previously served by DCEO through their business energy efficiency programs. DCEO's legacy public sector programs and our business energy efficiency programs have always been very similar with regard to the program and measure offerings they provide. Beginning with this Plan, the public sector and C&I programs effectively are being combined for purposes of program administration, although 10% of the total portfolio budget will be allocated to public sector customers. However, the total budget for Business programs of approximately \$178 million per year can be accessed by public sector customers – they are not restricted to the 10% that must be allocated for them.

Although DCEO's previous offerings are similar to ComEd's Business programs with regard to the programs and measures offered, DCEO incentives for public sector customers historically have generally been 2-3 times higher than ComEd's incentives for similar private sector customers. We conducted benchmarking research to

determine if other utilities across the country had higher incentive levels for public sector customers. Organizations monitoring utility energy efficiency programs were queried and several electric utilities were contacted directly. With very few exceptions, utility programs that included funding for public sector customers set incentive levels for public and private customers at the same levels. It should also be noted that DCEO's independent evaluator recommended reductions in incentive levels for several measures.

The challenge to successfully merging the public and private customer groups seamlessly into the portfolio is developing an adequate pipeline of cost-effective energy efficiency projects with public sector customers at the newer incentive levels. While some customers and stakeholders have become familiar with the higher incentives, there nevertheless remains a strong value proposition for public sector customers to invest in energy efficiency projects, even with incentive levels below those set by DCEO. The Plan includes additional outreach funding to work with public sector customers to develop a full pipeline of public sector projects.

ComEd understands issues related to budget limitations and funding uncertainty are barriers to investing in energy efficiency projects for some public customers. Closing the gap between the incentive amount and project cost, even if it is minimal, can stop even the most cost effective energy efficiency projects. ComEd will provide additional outreach and support to public customers needing technical assistance and solutions to fund energy efficiency projects. ComEd intends to connect customers to third-party grants and provide financing options for a variety of project sizes and customer needs.

The combination of additional technical support, project finance options, and ComEd's incentives will help a greater number of public sector customers invest in energy efficiency and participate in incentives

Public Housing Customers

Public housing organizations and associated residents previously served by DCEO through its Public Housing program will now be served by ComEd's portfolio. As required by Section 8-103B(c), public housing energy efficiency must be funded, at a minimum, at a percentage that is equal to public housing's share of total public building energy consumption. Our energy usage analysis concluded that public housing accounted for 3.4% of the public sector energy consumption in 2016. This equates to a minimum \$1.5 million budget for public housing. In this Plan, we have budgeted approximately \$2.2 million annually (not including portfolio level costs) for public housing to meet this requirement.

Because Section 8-103B does not define "public housing," we have discussed the definition with the Income-Eligible Advisory Committee, and propose to define public housing as buildings owned and managed by a Public Housing Authority ("PHA"), including residential units, common areas, and maintenance, community, office, and other buildings. Income-eligible customers that do not reside in PHA-owned buildings will still have numerous opportunities to be served through our income-eligible energy efficiency offerings.

R&D / Emerging Technologies / Building Codes

Section 8-103B(h) states that a maximum of 6% of the overall portfolio's budget can be allocated towards R&D, or pilot development of new equipment or measures, which we understand to include research into new technology platforms or innovative approaches. ComEd believes that the investment in new energy efficiency concepts is critical to the future success of its energy efficiency portfolio.

The energy efficiency landscape has changed dramatically in the last decade. Many energy efficiency measures have reached saturation in the marketplace or no longer pass the required cost-effectiveness tests. In addition, more efficient appliance standards and building codes have been adopted, which reduces measure savings potential. The result is that we will need to find new cost-effective, long-lived measures to help meet our energy savings goals.

One of the key new elements of this portfolio is the expansion of ComEd's Emerging Technology portfolio. We intend to engage our stakeholder community to develop a structured process that identifies opportunities for deployment of new technology or program designs that expand our ability to meet increasingly aggressive savings goals over time. Additionally, ComEd proposes that all applicable R&D projects be evaluated for kWh savings such that those savings can be applied to the annual kWh goal. ComEd expects these evaluations to be conducted by the independent evaluator.

NEW TECHNOLOGY REVIEW

During the previous Plan, the R&D team analyzed over 30 technologies and processes while sponsoring five studies and initiating seven pilot programs – including pilots testing Q-Sync motors in a novel walk-in freezer application and two residential energy management programs that leveraged smart meters to provide actionable intelligence to our customers.

Besides specific R&D projects, we will also continue to invest R&D budget dollars in organizations that provide information in support of utility energy efficiency programs (e.g., E-Source, New Buildings Institute, Continental Automated Buildings Association (“CABA”), The American Council for an Energy-Efficient Economy (“ACEEE”), and Consortium for Energy Efficiency (“CEE”). Organizations such as these provide not only new energy efficiency reconnaissance, but offer opportunities to take advantage of research being conducted at a national level, leveraging energy efficiency funding from across the country.

A joint research project to explore ways to increase building energy code compliance in Illinois was recently conducted through DCEO. All five Illinois Energy Efficiency Program Administrators (ComEd, Ameren, Nicor, DCEO & Peoples Gas / North Shore Gas) are funding this effort. The research project is working toward determining if a sustainable, on-going effort can reliably deliver cost-effective savings. A preliminary analysis was completed in 2017 and the Illinois utilities continue to discuss program options for 2018 and beyond. We expect to continue to fund a program focused on improving building energy code compliance during the CY 2018-2020 period, either through R&D or Market Transformation, if practicable.

In addition, the End-Use Saturation and Market Potential studies, described in more detail below, will be funded through R&D.

Third-Party Programs

Plan 5 includes third-party program implementation in two ways: first, during 2018, we will extend several of the third-party programs previously offered under the IPA procurement plans developed in accordance with Section 16-111.5B of the PUA; and second, we will implement a solicitation for third-party energy efficiency programs as described in Section 8-103B(g)(4) of the Act. For 2018, ComEd has identified five third-party program elements that have been implemented under Section 16-111.5B that we expect to extend into the first year of Plan 5 (*i.e.*, 2018). Two of the programs serve income-eligible customers, while the remaining three programs serve residential and business customers. A total of \$9 million in funding is being allocated for these third-party programs in 2018, and will ensure the continuation of third-party participation while the new solicitation for third-party energy efficiency programs is being developed.

Starting in 2019, the second year of this Plan, ComEd will offer the third-party energy efficiency programs described in Section 8-103B(g)(4), which will provide funding to third-party implementers totaling \$25 million per calendar year. To prepare for the launch of these third-party programs in 2019, ComEd will conduct and participate in a number of activities during 2018, the first year of the Plan. These include, for example, coordinating with stakeholders to develop the bidder qualifications, performance measurement process, and contract structure described in Section 8-103B(g)(4), which will be subject to Commission approval.

Once approved, ComEd will conduct an RFP solicitation process to identify and contract with third-party vendors who will be the implementers for programs to be offered during

one or more of the remaining calendar years in the Plan (2019-2021). ComEd will also work with stakeholders to identify specific areas in which to request programs. Potential program areas include, but are not limited to, income-eligible concepts, public sector concepts, technology concepts, customer segment-specific concepts (e.g., all electric), and geographically constrained areas. Of particular interest are third-party programs for income-eligible customers. We have allocated approximately \$6 million of the \$25 million per year (2019-2021) for this important customer segment. Overall, these third-party programs can advance the portfolio in new areas of energy efficiency.

In accordance with the statute, ComEd will also retain an independent third party to score and rank the proposals submitted by potential third-party implementers based on their costs over total lifetime savings. This third party administrator will also assemble the third-party portfolio.

Once the third-party implementers have been selected, ComEd will submit the list of implementers to the Commission to obtain Commission approval.

Community Energy Management

We are actively developing an energy efficiency outreach delivery approach that focuses on engaging a community as a whole to maximize the value of the energy efficiency for its residents and businesses. The goal is to establish a long-term relationship and build the overall awareness of utility offerings within the community through a blend of partnerships, outreach, and marketing tactics customized for the target area. The strategy is based on researching and understanding the community's

characteristics (e.g., account types, energy usage profiles, needs, customer demographics) to deliver a comprehensive set of energy efficiency offerings tailored to the community to reach as many customers as possible within the community. The delivery approach will consist of a grass roots effort that leverages key community partners and participation in community events, and will start with a physical presence in the neighborhood for a prolonged period of time (e.g., two to four months) to generate word of mouth regarding the energy efficiency offerings and create momentum to drive higher participation rates. To date, we have completed five community-targeted outreach campaigns and will expand to more communities throughout our service territory.

4. ComEd's Planning Process

The portfolio we propose is the product of a multi-stage analysis intended to gather and process the information required to determine program and portfolio cost-effectiveness as defined by Illinois law. At a high level, the analysis can be broken down into three distinct stages.

The first stage is the measures analysis, where the cost-effectiveness of the individual energy efficiency measures is determined using the TRC test. At the measure stage, the TRC test is only analyzing the cost of each measure, which means that program administration costs are not included because they are not yet relevant. Only the benefits associated with the measure are compared to the measure's costs.

The second stage is the bundling of cost-effective energy efficiency measures into programs, and performing the cost-effectiveness analysis at the program level. The program administration costs are included in this TRC test analysis.

Lastly, the programs are bundled into the overall portfolio, which is also analyzed for cost-effectiveness. This step also includes the non-program specific, portfolio level costs in the cost-effectiveness test. It is also at this stage that the portfolio is balanced, with program participation levels being scaled up or down in an effort to satisfy multiple objectives, including, for example: cost-effectiveness; portfolio reach; income-eligible, public sector, and third party carve outs; budget constraints; and ensuring funding for emerging technologies and education and outreach. This step has become even more complex and critical in Plan 5 as the introduction of new CPAS goals has meant that

future savings are now dependent on the portfolio's performance in previous years.

Thus, the need to ensure that the mix of measures provides future year savings is now more critical than ever.

Consistent with Section 8-103B, we will demonstrate in this Plan that the 2018-2021 portfolio of programs (not including income-eligible programs) is cost-effective under the TRC test.

The following sections discuss changes in the process and an overview of key aspects of our planning process. Appendix A contains a further discussion of the planning process.

Key Planning Enhancements

End-Use Baseline Study

We have not conducted an end-use baseline study since 2012, but we plan to conduct an updated study during Plan 5. Now that we manage the entire portfolio, special emphasis will be placed on gaining extensive knowledge of the energy usage patterns of the two new customer segments, income-eligible and public sector, as well as the traditional residential and C&I sectors. During this planned update, we will be looking at innovative approaches toward data collection and analysis that can take advantage of AMI data, non-invasive facility analyses, and advanced analytics. This work is expected to take place during 2018 and 2019.

Market Potential Study

Under previous plans, we updated our market potential study as part of the prior statutory framework. This study was designed to estimate the potential for cost-effective energy efficiency in the ComEd market. While this study is subjective in nature, it has provided directional information on key customer classes, customer segments, or end-uses (*i.e.*, energy efficiency opportunities).

Going forward, we intend to conduct our next market potential study in 2019 / 2020 in connection with the end-use baseline study. The goal will be to have both studies completed in time to incorporate into the next Section 8-103B plan, Plan 6.

Due to the tremendous research nature of both of these studies, we intend to fund these studies from our expanded Section 8-103B R&D budget.

DSMore Model

ComEd licenses the computer software DSMORE, an industry-standard demand-side management planning model, and has used the model to conduct the primary analysis for Plan 5, consistent with Plans 2, 3, and 4. DSMORE is a multi-scenario cost-effectiveness calculator that evaluates measure and program cost-effectiveness against nearly 700 different price/weather scenarios.

DSMORE's cost-effectiveness tests are based on the methods prescribed by the California Standard Practice Manual and the National Action Plan for Energy Efficiency ("NAPEE") and are consistent with the Illinois version of the TRC test. DSMORE's key feature (and what sets it apart from competing software) is its ability to correlate historic

price and weather data to develop forward-looking avoided costs. In addition to a “best case” determination of energy savings and avoided costs, DSMore also provides outputs for nine different weather/price combinations, which allows ComEd to consider the impact of price shift and weather extremes within the measure selection and program design process.

Stakeholder Input

In its Order approving our first plan, the ICC directed ComEd, along with DCEO and Ameren, to establish the SAG – a collaborative stakeholder process convened to discuss, among other things, energy efficiency planning, implementation, and evaluation issues.⁷ An independent facilitator was retained to manage the SAG meetings for the utilities and DCEO. This group, consisting primarily of environmental and consumer groups, has been a resource partner to us throughout the implementation of all our prior Plans, as well as for the development of this Plan. After the approval of our second plan, the

Stakeholder Advisory Group Members

- Ameren Illinois
- Citizens Utility Board (CUB)
- City of Chicago
- ComEd
- Department of Commerce & Economic Opportunity (DCEO)
- Environmental Law and Policy Center (ELPC)
- Future Energy Enterprise
- ICC Staff
- Illinois Attorney General's Office
- Midwest Energy Efficiency Alliance (MEEA)
- Natural Resources Defense Council (NRDC)
- Nicor
- Peoples Gas / North Shore Gas

⁷ See *Commonwealth Edison Co.*, ICC Docket No. 07-0540, Final Order (Feb. 6, 2008) at 32-33.

SAG was expanded to include natural gas utilities and programs. The SAG has been meeting for over nine years, typically on a monthly basis.

This effort has been a success, with all parties having built a shared understanding of the process of program planning, implementation, and evaluation. We intend to continue to engage with the SAG as a forum for review and discussion.

For Plan 5, SAG's role has been critical. SAG played a major role in the development of Illinois' first Energy Efficiency Policy Manual ("Policy Manual"), which is applicable to this Plan. SAG members also offered new program ideas and provided us with the opportunity to preview Plan 5 and solicit their feedback.

As mentioned previously, we have negotiated a contemplated agreement with several key members of SAG that has led to consensus on many critical aspects of the Plan. Overall, we believe the SAG has been a tremendous resource for our energy efficiency portfolio and we thank them for their continued input and support.

Electric / Gas Integration

The three northern Illinois utilities – ComEd, Nicor Gas, and Peoples Gas / North Shore Gas – have implemented a variety of jointly delivered energy efficiency programs during the period covered by our third (and current) Plan. The three utilities have met regularly over the past six years in support of this coordinated effort. The following programs are proposed to be co-delivered or coordinated by ComEd and the gas utilities as part of Plan 5. In addition, the utilities will coordinate efforts to enhance customers' experience

in several programs and outreach activities. Unless otherwise stated, the programs will be coordinated with both gas companies.

- **Residential**

- Single-Family Assessments
- Multi-Family Assessments
- HVAC & Weatherization
- Energy Education Kits
- New Construction

- **Business**

- C&I New Construction
- Retro-Commissioning
- Strategic Energy Management

- **Income Eligible Programs**

- Single-Family Retrofits
- Multi-Family Retrofits
- Affordable Housing New Construction
- Public Housing⁸

⁸ Per Section 8-103B(c), Public Housing's share of funding is relative to its share of public building energy consumption. Although we interpret this to mean that Public Housing is part of the Public Sector, it is included here in the income-eligible section as the majority of the residents of this housing type will be

We believe these coordinated efforts have been very successful in the past and have added value to the portfolio from both the utilities' and customers' perspectives. We look forward to continuing these efforts with the gas utilities as part of Plan 5.

income-eligible customers.

5. The ComEd Portfolio

Portfolio Design

Recently, we elected to retire the “Smart Ideas” banner that formed the structure of previous portfolios under Section 8-103, and we now promote the portfolio under the banner of “ComEd Energy Efficiency Program.” However, we still view our portfolio as offering two “umbrella” programs with a variety of program elements under each umbrella.

One umbrella is the group of Residential programs, including the income-eligible programs. This group of program elements is designed to offer all 3.4 million residential customers in our service territory a multitude of options for participating in the portfolio, from low- and no-cost measures to much deeper retrofit options. We consider it critical that all customers are offered the opportunity to participate.

Our other umbrella program (*i.e.*, Business programs) is designed for the C&I customers (as in past plans), but now also includes public sector programs. Similar to the Residential programs, the Business programs will offer these C&I customers a multitude of options to participate in the portfolio and will address different potential market entry points for these customers (*e.g.*, replace on fail, retrofits, new construction).

As required by Section 8-103B, the portfolio as a whole is cost-effective, excluding the income-eligible programs, with a TRC test benefit-cost ratio of 2.77, and the portfolio is designed to achieve the statutory CPAS goals while not exceeding the annual budgets.

The portfolio is also designed to meet the applicable statutory demand response goal.

The following tables (Tables 8, 9 & 10) present the proposed portfolio. Table 8 summarizes the portfolio's various cost components, including each program element's projected cost, by year. Table 9 summarizes the projected first year energy savings for each proposed program element by year, and while not as pertinent in the CPAS world, it still provides a valid measure of a program element's cost-effectiveness. Table 10 summarizes the projected CPAS for each proposed program element by year.

Tables 11 and 12 demonstrate the cost-effectiveness of our proposed portfolio. Table 11 summarizes the first year costs, by cents per kWh, for each of the program elements. Table 12 presents the lifetime levelized costs ("LLC") and TRC results for each program element. Finally, Table 13 presents the average measure life for each program element by year, which is now an important metric for the CPAS goal.

TABLE 8 - PORTFOLIO OVERVIEW - COSTS

Programs	CY 2018 Cost	CY 2019 Cost	CY 2020 Cost	CY 2021 Cost	4 Year Plan Cost
Residential - EE Programs					
Residential Behavior	\$7,276,250	\$6,683,156	\$6,390,235	\$6,397,491	\$26,747,132
Lighting Discounts	\$29,628,322	\$20,374,890	\$19,902,463	\$19,642,036	\$89,547,711
Appliance Rebates	\$15,293,699	\$16,285,076	\$17,063,505	\$17,626,105	\$66,268,385
Fridge & Freezer Recycling	\$8,702,138	\$8,741,973	\$8,781,917	\$8,821,974	\$35,048,000
Single-Family Assessments	\$9,623,742	\$9,507,614	\$9,501,034	\$9,585,414	\$38,217,804
Multi-Family Assessments	\$4,051,681	\$4,056,311	\$4,060,795	\$4,065,392	\$16,234,180
Residential HVAC & Weatherization	\$7,839,466	\$7,904,203	\$7,991,560	\$8,106,305	\$31,841,535
Elementary Education	\$741,983	\$743,077	\$744,198	\$745,347	\$2,974,606
Residential New Construction	\$392,065	\$393,159	\$394,280	\$395,429	\$1,574,934
NTC Middle School Kits	\$664,083	\$0	\$0	\$0	\$664,083
RESIDENTIAL TOTAL	\$84,213,429	\$74,689,459	\$74,829,988	\$75,385,494	\$309,118,370
Income Eligible - EE Programs					
Lighting Discounts - IE	\$4,468,130	\$3,861,735	\$4,062,446	\$4,563,234	\$16,955,545
Single Family Retrofits – IE	\$11,649,080	\$11,643,470	\$11,638,436	\$11,649,021	\$46,580,008
Multi Family Retrofits – IE	\$8,250,848	\$8,255,223	\$8,259,707	\$8,264,304	\$33,030,082
Affordable Housing New Construction	\$2,662,348	\$2,930,445	\$3,224,795	\$3,553,078	\$12,370,666
Food Bank-LED Distribution	\$3,214,478	\$0	\$0	\$0	\$3,214,478
UIC-ERC Low Income Kits	\$3,154,244	\$0	\$0	\$0	\$3,154,244
Third Party Income Eligible	\$0	\$6,000,000	\$6,000,000	\$6,000,000	\$18,000,000
Income Eligible Outreach	\$2,000,000	\$1,500,000	\$1,500,000	\$1,500,000	\$6,500,000
INCOME ELIGIBLE TOTAL	\$35,399,128	\$34,190,873	\$34,685,384	\$35,529,637	\$139,805,023
Business - EE Programs					
Incentives	\$56,906,019	\$56,897,783	\$53,051,721	\$54,470,460	\$221,325,983
Small Business	\$46,340,924	\$44,005,709	\$45,256,804	\$46,404,085	\$182,007,522
Business Instant Discounts	\$16,345,016	\$15,966,264	\$14,033,914	\$12,744,575	\$59,089,770
AC Tuneup	\$4,715,000	\$4,936,407	\$5,183,448	\$5,447,318	\$20,282,173
Non-Res New Construction	\$9,676,738	\$10,059,332	\$10,597,900	\$10,972,801	\$41,306,771
Industrial Systems	\$5,483,544	\$5,753,036	\$5,971,206	\$6,123,651	\$23,331,437
RetroCommissioning	\$8,105,642	\$8,291,934	\$8,419,942	\$8,488,839	\$33,306,357
Strategic Energy Management	\$2,189,000	\$2,193,375	\$2,197,859	\$2,202,456	\$8,782,690
LED Streetlighting	\$24,212,862	\$22,987,612	\$25,221,960	\$19,519,192	\$91,941,627
Facility Assessments	\$1,887,500	\$1,911,563	\$1,936,225	\$1,961,508	\$7,696,795
Public Housing Retrofits	\$2,190,127	\$2,194,502	\$2,198,986	\$2,203,583	\$8,787,198
Rural Small Business Kits	\$867,198	\$0	\$0	\$0	\$867,198
Power TakeOff	\$1,125,757	\$0	\$0	\$0	\$1,125,757
Business Sector Outreach	\$4,650,000	\$3,150,000	\$3,150,000	\$3,150,000	\$14,100,000
BUSINESS TOTAL	\$184,695,327	\$178,347,517	\$177,219,967	\$173,688,467	\$713,951,279
VO & Third Party EE Programs					
Third Party Programs	\$0	\$19,000,000	\$19,000,000	\$19,000,000	\$57,000,000
Voltage Optimization	\$0	\$0	\$0	\$0	\$0
VO & THIRD PARTY TOTAL	\$0	\$19,000,000	\$19,000,000	\$19,000,000	\$57,000,000
Demand Response					
Demand Response	\$1,100,000	\$1,261,000	\$1,437,000	\$1,612,000	\$5,410,000
Market Transformation					
Market Transformation	\$1,600,000	\$1,600,000	\$1,600,000	\$1,600,000	\$6,400,000
EIO / EDS	\$500,000	\$500,000	\$500,000	\$500,000	\$2,000,000
Smart Meter Connected Devices	\$751,000	\$443,900	\$443,900	\$443,900	\$2,082,700
MARKET TRANSFORMATION TOTAL	\$2,851,000	\$2,543,900	\$2,543,900	\$2,543,900	\$10,482,700
Portfolio Level Costs					
Portfolio Level Costs	\$43,374,996	\$41,601,132	\$41,917,642	\$43,874,382	\$170,768,152
PORTFOLIO TOTAL	\$351,633,881	\$351,633,881	\$351,633,881	\$351,633,881	\$1,406,535,524

TABLE 9 - FIRST YEAR SAVINGS BREAKDOWN BY PROGRAM AND YEAR

Programs	2018 First Year Energy Savings (MWh)	2019 First Year Energy Savings (MWh)	2020 First Year Energy Savings (MWh)	2021 First Year Energy Savings (MWh)	4-Year Energy Savings (MWh)
Residential - EE Programs					
Residential Behavior	275,502	74,936	97,750	106,471	554,659
Lighting Discounts	156,198	94,658	93,402	91,176	435,435
Appliance Rebates*	132,134	148,033	160,912	170,012	611,091
Fridge & Freezer Recycling	21,703	21,703	21,703	21,703	86,810
Single-Family Assessments*	20,754	20,754	20,754	17,931	80,193
Multi-Family Assessments	9,197	9,197	9,197	6,844	34,434
Residential HVAC & Weatherization*	10,612	10,642	10,693	10,765	42,712
Elementary Education*	4,650	4,921	5,150	3,953	18,674
Residential New Construction	571	571	571	571	2,283
NTC Middle School Kits	1,267	88	76	-	1,431
RESIDENTIAL TOTAL	632,588	385,503	420,207	429,426	1,867,723
Income Eligible - EE Programs					
Lighting Discounts – IE	16,494	12,771	13,584	15,197	58,046
Single Family Retrofits – IE*	17,226	17,226	17,222	17,077	68,751
Multi Family Retrofits – IE*	19,494	19,494	19,494	18,728	77,211
Affordable Housing New Construction	1,222	1,345	1,480	1,631	5,677
Food Bank-LED Distribution	15,241	2,981	2,555	-	20,778
UIC-ERC Low Income Kits	9,012	1,085	930	-	11,028
Third Party Income Eligible	-	20,000	20,000	20,000	60,000
Income Eligible Outreach	-	-	-	-	-
INCOME ELIGIBLE TOTAL	78,689	74,903	75,266	72,633	301,490
Business - EE Programs					
Incentives	313,333	320,001	300,865	307,391	1,241,589
Small Business	172,007	158,680	163,269	167,664	661,620
Business Instant Discounts	230,514	232,419	210,732	195,531	869,196
AC Tuneup	28,950	29,108	29,673	30,185	117,916
Non-Res New Construction	28,613	29,685	30,670	31,671	120,638
Industrial Systems	25,931	27,276	28,468	29,160	110,834
RetroCommissioning	30,044	30,188	30,653	30,929	121,814
Strategic Energy Management	27,978	27,978	27,978	27,978	111,910
LED Streetlighting	95,020	93,002	100,104	67,180	355,306
Facility Assessments	1,654	1,654	1,654	1,654	6,617
Public Housing Retrofits	1,826	1,826	1,826	1,539	7,015
Rural Small Business Kits	931	189	162	-	1,282
Power TakeOff	2,855	-	-	-	2,855
Business Sector Outreach	-	-	-	-	-
BUSINESS TOTAL	959,656	952,004	926,052	890,880	3,728,593
VO & Third Party EE Programs					
Third Party Programs	-	63,333	63,333	63,333	190,000
Voltage Optimization	82,500	200,000	210,000	260,000	752,500
VO & THIRD PARTY TOTAL	82,500	263,333	273,333	323,333	942,500
Demand Response					
Demand Response	-	-	-	-	-
Market Transformation					
Market Transformation	-	-	-	-	-
EIO / EDS	-	-	-	-	-
Smart Meter Connected Devices	-	-	-	-	-
MARKET TRANSFORMATION TOTAL	-	-	-	-	-
Portfolio Level Savings					
ComEd Programs Subtotal	1,753,432	1,675,743	1,694,859	1,716,272	6,840,306
Therm Conversion Excess	39,981	45,961	57,176	57,235	200,353
TOTAL COMED EE AND DR PROGRAM	1,713,451	1,629,783	1,637,682	1,659,037	6,639,954

*Denotes that the program contributes to electricity savings converted from therms

TABLE 10 - CPAS SAVINGS BREAKDOWN BY PROGRAM AND YEAR

Programs	2018 CPAS Energy Savings (MWh)	2019 CPAS Energy Savings (MWh)	2020 CPAS Energy Savings (MWh)	2021 CPAS Energy Savings (MWh)	4-Year CPAS Energy Savings (MWh)
Residential - EE Programs					
Residential Behavior	275,502	275,501	275,501	275,502	275,502
Lighting Discounts	156,198	250,856	344,258	393,249	393,249
Appliance Rebates*	132,134	280,167	441,079	611,091	611,091
Fridge & Freezer Recycling	21,703	43,405	65,108	86,810	86,810
Single-Family Assessments*	20,754	41,508	61,387	69,973	69,973
Multi-Family Assessments	9,197	18,394	27,584	27,361	27,361
Residential HVAC & Weatherization*	10,612	21,254	31,948	42,712	42,712
Elementary Education*	4,650	9,571	14,477	15,089	15,089
Residential New Construction	571	1,141	1,712	2,283	2,283
NTC Middle School Kits	1,267	1,369	1,456	1,131	1,131
RESIDENTIAL TOTAL	632,588	943,168	1,264,509	1,525,202	1,525,202
Income Eligible - EE Programs					
Lighting Discounts - IE	16,494	29,265	42,849	53,359	53,359
Single Family Retrofits – IE*	17,226	34,452	51,384	67,737	67,737
Multi Family Retrofits – IE*	19,494	38,989	58,425	74,715	74,715
Affordable Housing New Construction	1,222	2,566	4,046	5,677	5,677
Food Bank-LED Distribution	15,241	18,222	20,778	7,123	7,123
UIC-ERC Low Income Kits	9,012	10,098	11,028	7,076	7,076
Third Party Income Eligible	-	20,000	40,000	60,000	60,000
Income Eligible Outreach	-	-	-	-	-
INCOME ELIGIBLE TOTAL	78,689	153,592	228,510	275,686	275,686
Business - EE Programs					
Incentives	313,333	633,334	933,766	1,240,731	1,240,731
Small Business	172,007	330,686	487,099	647,842	647,842
Business Instant Discounts	230,514	462,933	673,665	842,435	842,435
AC Tuneup	28,950	58,058	85,298	100,114	100,114
Non-Res New Construction	28,613	58,297	88,967	120,638	120,638
Industrial Systems	25,931	53,206	79,407	105,976	105,976
RetroCommissioning	30,044	60,233	90,886	121,814	121,814
Strategic Energy Management	27,978	55,955	83,933	83,933	83,933
LED Streetlighting	95,020	187,869	287,668	354,132	354,132
Facility Assessments	1,654	1,654	1,654	1,654	1,654
Public Housing Retrofits	1,826	3,651	5,476	6,154	6,154
Rural Small Business Kits	931	1,120	1,282	1,072	1,072
Power TakeOff	2,855	2,855	2,331	2,331	2,331
Public Sector Outreach	-	-	-	-	-
BUSINESS TOTAL	959,656	1,909,852	2,821,431	3,628,824	3,628,824
VO & Third Party EE Programs					
Third Party Programs	-	63,333	126,667	190,000	190,000
Voltage Optimization	82,500	282,500	492,500	752,500	752,500
VO & THIRD PARTY TOTAL	82,500	345,833	619,167	942,500	942,500
Demand Response					
Demand Response	-	-	-	-	-
Market Transformation					
Market Transformation	-	-	-	-	-
EIO / EDS	-	-	-	-	-
Smart Meter Connected Devices	-	-	-	-	-
MARKET TRANSFORMATION TOTAL	-	-	-	-	-
Portfolio Level Savings					
ComEd Programs Subtotal	1,753,432	3,352,445	4,933,617	6,372,212	6,372,212
Therm Conversion Excess	39,981	85,942	141,922	197,879	197,879
TOTAL COMED EE AND DR PROGRAM	1,713,451	3,266,504	4,791,695	6,174,333	6,174,333

* Denotes that the program contributes to electricity savings converted from therms

TABLE 11 – FIRST YEAR COST RESULTS (DOLLARS PER KWH)

Programs	First Year Costs (\$/kWh)			
	2018	2019	2020	2021
Residential - EE Programs				
Residential Behavior	\$ 0.03	\$ 0.09	\$ 0.07	\$ 0.06
Lighting Discounts	\$ 0.19	\$ 0.22	\$ 0.21	\$ 0.22
Appliance Rebates*	\$ 0.12	\$ 0.11	\$ 0.11	\$ 0.10
Fridge & Freezer Recycling	\$ 0.40	\$ 0.40	\$ 0.40	\$ 0.41
Single-Family Assessments*	\$ 0.53	\$ 0.52	\$ 0.52	\$ 0.62
Multi-Family Assessments	\$ 0.44	\$ 0.44	\$ 0.44	\$ 0.59
Residential HVAC & Weatherization*	\$ 1.75	\$ 1.75	\$ 1.76	\$ 1.76
Elementary Education*	\$ 0.16	\$ 0.15	\$ 0.14	\$ 0.19
Residential New Construction	\$ 0.69	\$ 0.69	\$ 0.69	\$ 0.69
NTC Middle School Kits	\$ 0.52	\$ -	\$ -	\$ -
RESIDENTIAL TOTAL	\$ 0.13	\$ 0.19	\$ 0.18	\$ 0.18
Income Eligible - EE Programs				
Lighting Discounts - IE	\$ 0.27	\$ 0.30	\$ 0.30	\$ 0.30
Single Family Retrofits – IE*	\$ 1.04	\$ 1.04	\$ 1.04	\$ 1.06
Multi Family Retrofits – IE*	\$ 1.20	\$ 1.20	\$ 1.20	\$ 1.20
Affordable Housing New Construction	\$ 2.18	\$ 2.18	\$ 2.18	\$ 2.18
Food Bank-LED Distribution	\$ 0.21	\$ -	\$ -	\$ -
UIC-ERC Low Income Kits	\$ 0.35	\$ -	\$ -	\$ -
Third Party Income Eligible	\$ -	\$ 0.30	\$ 0.30	\$ 0.30
INCOME ELIGIBLE TOTAL	\$ 0.45	\$ 0.46	\$ 0.46	\$ 0.49
Business - EE Programs				
Incentives	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18
Small Business	\$ 0.27	\$ 0.28	\$ 0.28	\$ 0.28
Business Instant Discounts	\$ 0.07	\$ 0.07	\$ 0.07	\$ 0.07
AC Tuneup	\$ 0.16	\$ 0.17	\$ 0.17	\$ 0.18
Non-Res New Construction	\$ 0.34	\$ 0.34	\$ 0.35	\$ 0.35
Industrial Systems	\$ 0.21	\$ 0.21	\$ 0.21	\$ 0.21
RetroCommissioning	\$ 0.27	\$ 0.27	\$ 0.27	\$ 0.27
Strategic Energy Management	\$ 0.08	\$ 0.08	\$ 0.08	\$ 0.08
LED Streetlighting	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.29
Facility Assessments	\$ 1.14	\$ 1.16	\$ 1.17	\$ 1.19
Public Housing Retrofits	\$ 1.20	\$ 1.20	\$ 1.20	\$ 1.43
Rural Small Business Kits	\$ 0.93	\$ -	\$ -	\$ -
Power TakeOff	\$ 0.39	\$ -	\$ -	\$ -
BUSINESS TOTAL	\$ 0.19	\$ 0.19	\$ 0.19	\$ 0.19
VO & Third Party EE Programs				
Third Party Programs	\$ -	\$ 0.30	\$ 0.30	\$ 0.30
Voltage Optimization	\$ -	\$ -	\$ -	\$ -
VO & THIRD PARTY TOTAL	\$ -	\$ 0.07	\$ 0.07	\$ 0.06
TOTAL COMED PORTFOLIO	\$ 0.21	\$ 0.22	\$ 0.21	\$ 0.21

* Denotes programs with Therm Conversions

All values assume joint participation levels

TABLE 12 – LEVELIZED COSTS AND TRC BY PROGRAM

Programs	Lifetime LC* (\$/kWh)	TRC
Residential - EE Programs		
Residential Behavior	\$ 0.018	2.35
Lighting Discounts	\$ 0.023	13.40
Appliance Rebates	\$ 0.052	2.59
Fridge & Freezer Recycling	\$ 0.055	1.65
Single-Family Assessments	\$ 0.075	1.34
Multi-Family Assessments	\$ 0.062	2.27
Residential HVAC & Weatherization	\$ 0.062	1.79
Elementary Education	\$ 0.055	1.98
Residential New Construction	\$ 0.036	2.11
NTC Middle School Kits	\$ 0.086	0.86
RESIDENTIAL TOTAL	\$ 0.039	2.53
Income Eligible - EE Programs		
Lighting Discounts - IE	\$ 0.032	13.88
Single Family Retrofits – IE	\$ 0.139	0.81
Multi Family Retrofits – IE	\$ 0.157	0.78
Affordable Housing New Construction	\$ 0.114	1.63
Food Bank-LED Distribution	\$ 0.035	0.56
UIC-ERC Low Income Kits	\$ 0.047	1.24
Third Party Income Eligible	\$ 0.033	1.00
INCOME ELIGIBLE TOTAL	\$ 0.085	1.12
Business - EE Programs		
Incentives	\$ 0.019	2.31
Small Business	\$ 0.026	3.22
Business Instant Discounts	\$ 0.008	9.65
AC Tuneup	\$ 0.048	2.97
Non-Res New Construction	\$ 0.023	2.70
Industrial Systems	\$ 0.021	3.31
RetroCommissioning	\$ 0.072	2.58
Strategic Energy Management	\$ 0.034	3.71
LED Streetlighting	\$ 0.152	19.31
Facility Assessments	\$ 1.455	0.06
Public Housing Retrofits	\$ 0.125	0.63
Rural Small Business Kits	\$ 0.096	0.59
Power TakeOff	\$ 0.095	0.70
BUSINESS TOTAL	\$ 0.015	3.41
VO & Third Party EE Programs		
Third Party Programs	\$ 0.033	1.00
Voltage Optimization	\$ 0.024	3.79
VO & THIRD PARTY TOTAL	\$ 0.026	2.71
TOTAL COMED PORTFOLIO	\$ 0.022	2.70

* Denotes that the program contributes to electricity savings converted from therms

TABLE 13 - PROGRAM MEASURE LIFE

Programs	Measure Life (years)			
	2018	2019	2020	2021
Residential - EE Programs				
Residential Behavior	5.0	5.0	5.0	5.0
Lighting Discounts	10.4	10.7	10.7	10.8
Appliance Rebates*	10.0	10.0	10.0	10.0
Fridge & Freezer Recycling	8.0	8.0	8.0	8.0
Single-Family Assessments*	9.0	9.0	9.0	10.5
Multi-Family Assessments	9.9	9.9	9.9	13.2
Residential HVAC & Weatherization*	17.8	17.8	17.8	17.9
Elementary Education*	8.8	9.0	9.0	10.3
Residential New Construction	25.0	25.0	25.0	25.0
NTC Middle School Kits	7.3	10.0	10.0	
RESIDENTIAL TOTAL	8.5	9.5	9.4	9.4
Income Eligible - EE Programs				
Lighting Discounts - IE	10.4	10.6	10.6	10.5
Single Family Retrofits – IE*	18.3	18.4	18.4	18.6
Multi Family Retrofits – IE*	14.3	14.3	14.3	14.9
Affordable Housing New Construction	25.0	25.0	25.0	25.0
Food Bank-LED Distribution	9.6	10.0	10.0	
UIC-ERC Low Income Kits	9.1	10.0	10.0	
Third Party Income Eligible		10.0	10.0	10.0
INCOME ELIGIBLE TOTAL	12.4	13.2	13.2	13.4
Business - EE Programs				
Incentives	13.5	14.0	14.3	14.3
Small Business	13.1	13.0	12.9	12.7
Business Instant Discounts	9.8	9.8	10.0	10.1
AC Tuneup	3.9	3.9	3.9	4.0
Non-Res New Construction	20.0	20.0	20.0	20.0
Industrial Systems	12.0	11.9	11.8	11.6
RetroCommissioning	4.7	4.7	4.8	4.7
Strategic Energy Management	3.0	3.0	3.0	3.0
LED Streetlighting	18.0	18.0	18.1	18.1
Facility Assessments	1.0	1.0	1.0	1.0
Public Housing Retrofits	12.5	12.5	12.5	14.8
Rural Small Business Kits	8.2	8.2	8.2	
Power TakeOff	4.3			
BUSINESS TOTAL	12.3	12.5	12.7	12.6
VO & Third Party EE Programs				
Third Party Programs		10.0	10.0	10.0
Voltage Optimization	15.0	15.0	15.0	15.0
VO & THIRD PARTY TOTAL		10.0	10.0	10.0
TOTAL COMED PORTFOLIO	10.8	11.6	11.7	11.6

* Denotes that the program contributes to electricity savings converted from therms

Portfolio Elements

Our portfolio is constructed from five building blocks. Four of these building blocks focus on specific customer groups or activities, while the last building block, Education & Outreach / Market Transformation, is more general in nature and cuts across all customer classes. The five building blocks are:

- Residential customers
- Income-eligible customers (sometimes referred to as “low-income”)
- Business customers
- Public sector customers (a subgroup of Business customers)
- Education and Outreach / Market Transformation Activities

Each of these building blocks is discussed in detail in the following sections.

Residential Program Elements

Our Residential programs are targeted at our residential customer segment; however, income-eligible customers may also participate. We have a total of 3.4 million residential customers, accounting for 90% of our customers and approximately 35% of the overall kWh usage.

The Residential program umbrella consists of 10 programs (not including the income-eligible programs discussed in the next section), which are projected to provide CPAS of 632,588 MWh, 943,168 MWh, 1,264,509 MWh, and 1,525,202 MWh for 2018,

2019, 2020 and 2021, respectively. These program elements are expected to attain 36% of our total CPAS goal in 2018, 28% in 2019, 26% in 2020, and 24% in 2021.

These Residential programs will continue to offer a wide range of options for residential customer energy management, and are intended to reach all key market segments, including the income-eligible segment. Our Residential Products program includes a variety of residential appliances as well as other energy efficient devices, including smart thermostats that most customers can use within their homes. As noted above, while these programs are not included in the \$25 million minimum of income-eligible targeted programs per year, as required by Section 8-103B(c), income-eligible customers can and do participate in these programs.

The following pages provide a detailed description of each of these program elements.

Program Name	Residential Behavior (aka Home Energy Reports) Program
Program Description	The Home Energy Reports Program, currently an opt-out only program, provides select residential customers with information on how they use energy within their households. The customer's home energy usage is compared to the average usage of households that are geographically located in close approximation of one another and have similar characteristics such as dwelling, heating type, and size.
Program Duration	January 2018 through December 2021
Collaboration	None
Delivery Strategy	<p>This program involves delivery of tailored energy usage reports to participating customers, typically on a bi-monthly basis. These reports provide comparisons of the participant's consumption against a demographic peer group, and provide tips and guidance regarding how the participant can reduce energy use. The Home Energy Reports Program will contract with a third-party implementation vendor to administer this program.</p> <p>Call center personnel will be trained to field customer questions and help manage program opt-out requests.</p>
Target Market	This program targets residential single-family and multi-family customers in ComEd's service territory. All such targeted customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.
Marketing Strategy	<p>Research indicates that information campaigns are not sufficient on their own to get individuals to change their behavior. Behavioral marketing is defined as using human biases that are important for making decisions and incorporating those biases into marketing campaigns to make them more effective. The Home Energy Reports Program uses behavioral marketing by focusing on social norms.</p> <p>The overall marketing strategy for Home Energy Reports will largely operate as continued education and awareness of energy efficiency, because this program is conducted on an opt-out basis. Marketing will occur through promotion of energy efficiency offerings through tips.</p>

Program Name	Residential Behavior (aka Home Energy Reports) Program												
	<p>Customers participating in the program will be reached through messages on their customized reports, digital media, and additional targeted mailings based on energy reduction needs.</p> <p>Key marketing messaging for this program are: (1) reduce your energy usage – check out more ways to save at www.ComEd.com; (2) become a more informed user of energy and how easily you can save money on your monthly expenses; (3) join in and compare amongst your peers/neighbors who may be more energy efficient; (4) being more energy efficient and saving is as simple as slightly changing an existing habit or pattern; and (5) do not waste energy while you’re away – get a smart thermostat and start saving.</p>												
Eligible Measures	<p>The Home Energy Reports provide residential customers with information on how they use energy within their households on a monthly basis. The report may display usage analytics such as a last 2-months neighbor comparison, a 12-month neighbor comparison, a personal comparison that illustrates the customer’s usage from the same time last year, and specific energy tips that are based on the characteristics and usage of the household.</p> <p>The types of measures undertaken by customers are primarily behavioral in nature, and can include turning off lights, adjusting air conditioning temperature set-points, and turning off/unplugging electronic equipment when not in use. Given the design of the program and the method of measuring energy savings (which relies on customer’s monthly energy consumption versus a control group), the breadth of measures actually undertaken is not known.</p>												
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 1696 1406 1831"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Customers</td> <td>1,700,000</td> <td>1,700,000</td> <td>1,700,000</td> <td>1,700,000</td> <td>6,800,000</td> </tr> </tbody> </table>		2018	2019	2020	2021	Total	Total Customers	1,700,000	1,700,000	1,700,000	1,700,000	6,800,000
	2018	2019	2020	2021	Total								
Total Customers	1,700,000	1,700,000	1,700,000	1,700,000	6,800,000								

Program Name

Residential Behavior (aka Home Energy Reports) Program

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	275,502	275,502	275,502	275,502	275,502
Net MWh	275,502	275,501	275,501	275,502	275,502
First Year Annual Savings					
Gross MWh	275,502	74,936	97,750	106,471	554,659
Net MWh	275,502	74,936	97,750	106,471	554,659

Program Budget

	2018	2019	2020	2021	Total
Administration	\$276,250	\$283,156	\$290,235	\$297,491	\$1,147,132
Implementation	\$6,500,000	\$5,900,000	\$5,600,000	\$5,600,000	\$23,600,000
Incentives	\$0	\$0	\$0	\$0	\$0
Marketing and Other	\$500,000	\$500,000	\$500,000	\$500,000	\$2,000,000
Total	\$7,276,250	\$6,683,156	\$6,390,235	\$6,397,491	\$26,747,132

Cost-Effectiveness Results

	Test Results
TRC	2.35
UCT	2.35
CCE	\$0.018

Program Name	Lighting Discounts
Program Description	<p>The Residential Lighting Discounts Program is designed to increase the market share of ENERGY STAR® certified LED lighting products sold through retail sales channels by providing instant discounts (at the time of sale) to decrease customer costs, as well as information and education to increase consumer awareness and acceptance of energy efficient lighting technology.</p> <p>Instant discounts minimize the burden on consumers by lowering barriers to participation. Select ENERGY STAR certified LED lighting products will be listed at a lower retail price on the store shelves.</p> <p>ComEd will continue to partner with an implementation contractor who will establish partnerships with midstream channel actors (retailers and their suppliers) to provide customers with instant discounts on select ENERGY STAR certified LED lighting products.</p> <p>A midstream program approach leverages the normal retail sales channels for ENERGY STAR certified LED lighting products, creating opportunities for cooperative promotions with retailers and manufacturers, and supporting long-term market transformation goals. A midstream approach also facilitates quick program ramp-up and provides detailed data to support evaluation of program impacts.</p>
Program Duration	January 2018 through December 2021
Collaboration	None
Delivery Strategy	<p>ComEd will continue to partner with a residential lighting implementation contractor to provide services as described in this Plan.</p> <p>Key elements of the implementation strategy include:</p> <ul style="list-style-type: none"> • Retailer/Manufacturer Recruitment: ComEd will issue an RFP to solicit participation by retailers and manufacturers in ComEd’s service territory. The RFP will specify program requirements, such as product specifications and performance criteria, product stocking objectives based on anticipated rebate volume, and data sharing requirements. A Memorandum of Understanding (“MOU”) will be signed with selected retailers and manufacturers that delineate roles

Program Name	Lighting Discounts
	<p>and responsibilities and each party's commitments in support of programmatic objectives.</p> <ul style="list-style-type: none"> • Retailer Education and Outreach: During program implementation, field staff will maintain regular contact with participating retailers to ensure the following: (1) retail sales staff are informed about the program offering, instant discount process, and benefits of ENERGY STAR certified LED lighting products; (2) the instant discounts are ringing up correctly at the cash registers; (3) point-of-purchase displays are displayed properly and qualifying products are stocked in accordance with retailer commitments; (4) program staff are responsive to retailer concerns and issues can be addressed promptly. The program will also inform retailers well in advance of planned promotional activities and cooperative advertising opportunities. • Incentive Processing: ComEd's program implementation contractor will provide prompt processing of incentive payments to retailers/manufacturers. Since prompt incentive payment is essential to retailer satisfaction and ongoing program engagement, ComEd will work with the implementation contractor to establish processes and procedures that expedite incentive payments.
Target Market	<p>The Residential Lighting Discounts Program targets residential customers purchasing lighting products through retail sales channels. All residential customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>The overall marketing strategy will be to leverage customer interactions at the point-of-sale to deliver information about ENERGY STAR certified LED lighting products available for instant discounts. ComEd will also use that customer touch-point to obtain customers' preferences and contact information to maximize future communications about energy efficiency education and awareness. Marketing will utilize specific messaging, targeted campaigns, measurable sales comparisons, and behavioral marketing tactics.</p> <p>Tactics will focus on point-of-purchase communications, such as in-store signage identifying discounted products, demos and product placement/special displays at select retail partners. Other tactics may</p>

Program Name	Lighting Discounts												
	<p>include: bill inserts, general consumer education and awareness, mass marketing, direct mail, and electronic marketing. Where possible, tactics will include feedback mechanisms such as customer satisfaction surveys and email collection for future messaging about energy efficiency. ComEd will work closely with the implementation contractor to develop and coordinate the timing of promotional campaigns.</p> <p>Marketing materials will include the ENERGY STAR brand as a trusted source of quality products.</p>												
Eligible Measures	<p>The eligible measures under this program are ENERGY STAR certified LED bulbs (standard and specialty) and fixtures; however, ComEd may revise eligible measures and instant discount incentive amounts as needed in accordance with current market conditions, technology development, EM&V results and program implementation experience.</p>												
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 1104 1408 1245"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Bulbs and Fixtures</td> <td>6,931,316</td> <td>3,428,776</td> <td>3,378,812</td> <td>3,277,090</td> <td>17,015,993</td> </tr> </tbody> </table>		2018	2019	2020	2021	Total	Total Bulbs and Fixtures	6,931,316	3,428,776	3,378,812	3,277,090	17,015,993
	2018	2019	2020	2021	Total								
Total Bulbs and Fixtures	6,931,316	3,428,776	3,378,812	3,277,090	17,015,993								

Program Name

Lighting Discounts

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	263,417	263,417	263,417	263,417	263,417
Net MWh	156,198	250,856	344,258	393,249	393,249
First Year Annual Savings					
Gross MWh	263,417	157,313	155,148	151,310	727,188
Net MWh	156,198	94,658	93,402	91,176	435,435
Gross MW	152	91	90	87	420
Net MW	90	55	54	53	251

Program Budget

	2018	2019	2020	2021	Total
Administration	\$236,250	\$242,156	\$248,210	\$254,415	\$981,032
Implementation	\$2,811,701	\$2,740,460	\$2,675,162	\$2,638,774	\$10,866,097
Incentives	\$25,630,108	\$16,457,699	\$16,066,719	\$15,848,847	\$74,003,373
Marketing and Other	\$950,263	\$934,575	\$912,372	\$900,000	\$3,697,210
Total	\$29,628,322	\$20,374,890	\$19,902,463	\$19,642,036	\$89,547,711

Cost-Effectiveness Results

	Test Results
TRC	13.40
UCT	2.27
CCE	\$0.023

Program Name	Appliance Rebates
Program Description	<p>The Residential Appliance Rebates program is designed to increase the market share of ENERGY STAR® certified appliances and other energy-efficient home products sold through retail sales channels by providing rebates or instant discounts (at the time of sale) to decrease customer costs, as well as information and education to increase customer awareness and acceptance of energy-efficient products.</p> <p>ComEd will continue to partner with an implementation contractor who will establish partnerships with midstream channel actors (retailers and their suppliers) to provide customers with rebates or instant discounts on select ENERGY STAR certified appliance and other energy-efficient home products.</p> <p>A midstream program approach leverages the normal retail sales channels for ENERGY STAR certified appliances and other energy-efficient home products, creating opportunities for cooperative promotions with retailers and manufacturers, and supporting long-term market transformation goals. A midstream approach also facilitates quick program ramp-up and provides detailed data to support evaluation of program impacts.</p>
Program Duration	January 2018 through December 2021
Collaboration	None
Delivery Strategy	<p>ComEd will continue to partner with the implementation contractor that implements the Residential Lighting Discounts program to leverage the field staff who will be servicing common retail partners, in addition to retailers specific to appliances and other home products.</p> <p>Key elements of the implementation strategy include:</p> <ul style="list-style-type: none"> • Retailer/manufacturing recruitment: Any retailer within the ComEd service territory is eligible to offer the ComEd rebate to ComEd customers; no special recruitment is required for retailers participating in the rebate program. For instant discounts, ComEd will issue an RFP to solicit participation by retailers and manufacturers in ComEd's service territory. The RFP will specify program requirements, such as product specifications and performance criteria, product stocking objectives based on anticipated volume, and data sharing requirements. An MOU will be required to be

Program Name	Appliance Rebates
	<p>signed with selected retailers/manufacturers offering instant discounts that delineate roles and responsibilities and each party's commitments in support of programmatic objectives</p> <ul style="list-style-type: none"> • Retailer education and outreach: During program implementation, field staff will maintain regular contact with participating retailers to ensure the following: (1) retail sales staff are informed about the program offering, rebate process, and benefits of ENERGY STAR certified appliances and other energy-efficient home products; (2) retailers have an adequate supply of rebate forms, if appropriate, and instant discounts are ringing up correctly at the cash registers; (3) point-of-purchase materials are displayed properly and that qualifying products are stocked in accordance with retailer commitments; and (4) program staff are responsive to retailer concerns and issues can be addressed promptly. The program will also inform retailers well in advance of planned promotional activities and cooperative advertising opportunities. • Rebate/Incentive processing: ComEd's program implementation contractor will provide prompt processing of rebate payments to customers and incentive payments to retailers/manufacturers. Since prompt rebate and incentive payment is essential to customer and retailer satisfaction and ongoing program engagement, ComEd will work with the implementation contractor to establish processes and procedures that expedite rebate and incentive payments.
Target Market	<p>The Residential Appliance Rebates program targets residential customers purchasing new or replacement appliances and other home products through retail channels. All residential customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>The overall marketing strategy will be to leverage customer interactions at the point-of-sale to deliver information about ENERGY STAR certified appliances and other energy-efficient home products available for rebates or instant discounts. ComEd will also use that customer touch-point to obtain customers' preferences and contact information to maximize future communications about energy efficiency education and awareness. Marketing will utilize specific messaging, targeted campaigns, measurable sales comparisons, and behavioral marketing tactics.</p>

Program Name	<p>Appliance Rebates</p>												
	<p>Tactics will focus on point-of purchase communications such as in-store signage identifying rebated/discount products and product placement/special displays at select retail partners.</p> <p>Other tactics may include: bill inserts, general consumer education and awareness, mass media, direct mail, and electronic marketing. Where possible, tactics will include feedback mechanisms such as customer satisfaction surveys and email collection for future messaging about energy efficiency. ComEd will work closely with the implementation contractor to develop and coordinate the timing of promotional campaigns.</p> <p>Marketing materials will include the ENERGY STAR brand as a trusted source of quality products.</p>												
Eligible Measures	<p>The eligible measures under this program are a variety of select ENERGY STAR certified appliances and other energy-efficient home products (smart thermostats and advanced power strips). ComEd may revise eligible measures and rebate/instant discount incentive amounts as needed in accordance with current market conditions, technology development, EM&V results, and program implementation experience.</p>												
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 1220 1408 1373"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Rebates</td> <td>170,650</td> <td>179,450</td> <td>186,578</td> <td>191,615</td> <td>728,293</td> </tr> </tbody> </table>		2018	2019	2020	2021	Total	Total Rebates	170,650	179,450	186,578	191,615	728,293
	2018	2019	2020	2021	Total								
Total Rebates	170,650	179,450	186,578	191,615	728,293								

Program Name

Appliance Rebates

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	36,602	75,704	116,833	159,393	159,393
Net MWh	28,977	60,005	92,694	126,557	126,557
Gross Therms	4,293,525	9,163,450	14,500,259	20,166,992	20,166,992
Net Therms	3,520,691	7,514,029	11,890,212	16,536,933	16,536,933
Gross MWh (therm conversion)	125,800	268,489	424,858	590,893	590,893
Net MWh (therm conversion)	103,156	220,161	348,383	484,532	484,532
Gross Composite MWh	162,402	305,091	461,459	627,495	627,495
Net Composite MWh	132,133	280,166	441,077	611,089	611,089
First Year Annual Savings					
Gross MWh	36,602	39,103	41,128	42,560	159,393
Net MWh	28,977	31,028	32,689	33,863	126,557
Gross MW	20	21	22	23	87
Net MW	16	17	18	19	70
Gross Therms	4,293,525	4,869,925	5,336,809	5,666,733	20,166,992
Net Therms	3,520,691	3,993,339	4,376,183	4,646,721	16,536,933
Gross MWh (therm conversion)	125,800	142,689	156,369	166,035	590,893
Net MWh (therm conversion)	103,156	117,005	128,222	136,149	484,532
Gross Composite (MWh)	162,402	181,791	197,497	208,595	750,285
Net Composite (MWh)	132,133	148,033	160,911	170,012	611,089

Program
Name

Appliance Rebates

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$1,155,699	\$1,262,701	\$1,323,846	\$1,378,149	\$5,120,395
Incentives	\$12,963,000	\$13,843,000	\$14,555,800	\$15,059,500	\$56,421,300
Marketing and Other	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$4,000,000
Total	\$15,293,699	\$16,285,076	\$17,063,505	\$17,626,105	\$66,268,385

Cost-Effectiveness Results

	Test Results
TRC	2.59
UCT	3.21
CCE	\$0.190

Program Name	Fridge & Freezer Recycling
Program Description	<p>The Fridge & Freezer Recycling program element is an existing program that was also offered in Plans 1, 2 and 3, and approved in Plan 4. The program is designed to promote the retirement and recycling of inefficient, working refrigerators and freezers, as well as room air conditioners, from households by offering a turn-in incentive and free pickup of the equipment. ComEd will continue to partner with an appliance recycling contractor to provide implementation services that include verification of customer eligibility, scheduling of appointments, appliance pickup, recycling and disposal activities, and incentive processing. The recycling and disposal activities will continue to follow EPA RAD guidelines. ComEd will continue to directly perform the marketing activities for this program to drive participation levels.</p> <p>Program implementation through an appliance recycling contractor simplifies program delivery, reduces ComEd's administrative costs, and ensures a streamlined participation process. The program has been designed to minimize barriers to participation by offering incentives, convenient scheduling of appointments, and free collection of qualifying equipment.</p>
Program Duration	January 2018 through December 2021
Collaboration	None
Delivery Strategy	<p>The key element of the Fridge & Freezer Recycling program implementation strategy is:</p> <p>Customer Education and Recruitment: ComEd will continue to apply proven marketing tactics and strategies that have been utilized in prior customer recruitment campaigns for this program. There will be strong consumer messaging and educational components emphasizing how much it costs to operate an old refrigerator or freezer, as well as the availability of participating incentives and the free pickup service that is included.</p>
Target Market	The Fridge & Freezer Recycling program is designed for residential customers with older working refrigerators, freezers, and room air conditioners. All targeted customers taking delivery service from ComEd

Program Name	Fridge & Freezer Recycling
	are eligible for this program regardless of their choice of supplier.
Marketing Strategy	<p>The primary marketing strategy will be to utilize residential bill inserts to maintain awareness of the program. More extensive marketing campaigns will be developed and implemented at various times to help raise program awareness and drive participation levels. These campaigns will likely include mass media channels such as local radio and digital outlets.</p> <p>The marketing tactics will leverage customer interactions to deliver information about the Fridge & Freezer Recycling program, the benefits of recycling older working refrigerators and freezers, the ability to save on monthly electric bills, and the overarching message of energy efficiency. Continual review and analysis of all marketing efforts will allow for improved effectiveness and efficiency of future campaigns. The marketing strategy will also educate customers and continue to increase awareness of the positive effects of appliance recycling and responsible energy management.</p> <p>Tactics will include a variety of targeted marketing communications channels such as: bill inserts, radio spots, and digital ads. ComEd will leverage customer interactions with behavioral marketing to enhance program promotion and effectiveness of campaigns. Such tactics may include contests, friend referrals, and measurable feedback mechanisms, such as business reply cards and email, to determine which consumers have second refrigerators.</p> <p>Additional marketing tactics will be conducted through electronic channels, such as web content, paid search advertising, email campaigns, social media, and online videos.</p> <p>Key marketing messaging for this program are: (1) older, working refrigerators and freezers can cost homeowners up to \$150 a year in electricity; (2) ComEd will pick up eligible equipment for FREE; (3) ComEd will send participants an incentive for each unit (limit 2); and (4) ComEd will recycle the appliances in an environmentally responsible manner.</p>
Eligible Measures	In addition to free pickup of eligible equipment, this program will provide turn-in incentives for participating. ComEd's experience with this program is that customer participant rates tend to fluctuate at various times of the year. ComEd may also adjust incentive amounts during

Program Name	Fridge & Freezer Recycling					
Program Targets	<p>limited-time special program promotions.</p> <p>Because it is not cost-effective to pick up a room air conditioner alone, the program will only collect room air conditioners from customers who have a refrigerator or freezer picked up.</p>					
Program Targets	Participation Levels					
Program Targets		2018	2019	2020	2021	Total
Program Targets	Total Pickups	45,000	45,000	45,000	45,000	180,000
Program Targets	Annual Savings Targets					
Program Targets		2018	2019	2020	2021	Total
Program Targets	Cumulative Persisting Annual Savings					
Program Targets	Gross MWh	34,979	69,957	104,936	139,915	139,915
Program Targets	Net MWh	21,703	43,405	65,108	86,810	86,810
Program Targets	First Year Annual Savings					
Program Targets	Gross MWh	34,979	34,979	34,979	34,979	139,915
Program Targets	Net MWh	21,703	21,703	21,703	21,703	86,810
Program Targets	Gross MW	10	10	10	10	39
Program Targets	Net MW	6	6	6	6	24

Program
Name

Fridge & Freezer Recycling

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$2,223,000	\$2,223,000	\$2,223,000	\$2,223,000	\$8,892,000
Incentives	\$4,304,138	\$4,339,598	\$4,375,058	\$4,410,518	\$17,429,310
Marketing and Other	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$8,000,000
Total	\$8,702,138	\$8,741,973	\$8,781,917	\$8,821,974	\$35,048,000

Cost-Effectiveness Results

	Test Results
TRC	1.65
UCT	1.44
CCE	\$0.055

Program Name	Single-Family Assessments
Program Description	<p>The Residential Single-Family Assessment program element will obtain energy savings in existing residential homes by overcoming market barriers to installing energy efficiency measures. The program will also be used as an opportunity to encourage customers to participate in other ComEd energy efficiency programs. Energy-saving improvements will be promoted through a comprehensive whole-house approach to energy efficiency, which includes a high-level assessment to identify other energy-saving opportunities and provide the customer with estimated cost savings and incentives for these opportunities.</p> <p>An energy advisor will review the home's energy use and provide participants with information on additional energy-saving opportunities. The advisor will also install instant energy saving measures such as LEDs, faucet aerators, low-flow showerheads, and other instant energy-saving measures. Participants will be educated on other utility offerings from which they may benefit.</p>
Program Duration	January 2018 through December 2021
Collaboration	It is our intent, to the extent possible, to offer this program in coordination with Nicor Gas and Peoples Gas / North Shore Gas. There is a high potential for this program to benefit both gas and electric utility customers.
Delivery Strategy	<p>An implementation contractor will deliver the program, and will work with ComEd to finalize the program design, develop marketing materials, conduct program marketing and outreach activities, and provide energy assessments and direct installations in the target market.</p> <p>After a customer has expressed interest in the program, the implementation contractor will schedule a site visit to the home. During this visit, an energy advisor will conduct a high-level energy assessment, install energy-saving measures, and provide the customer with information on other utility program offerings. The field technician will explain the assessment results and provide recommendations for additional energy savings opportunities. LEDs, advanced power strips, thermostats, water-saving devices, and other energy-savings measures may be installed for the customer.</p>

Program Name	Single-Family Assessments
	<p>Inspection and installation protocols will be established for this program and will require that all work meet or exceed the utility’s standards.</p>
Target Market	<p>This program is designed for residential customers seeking to make their home more energy efficient. All residential electric customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>The marketing strategy will employ targeted communication channels to segments in and throughout the ComEd service territory. Community-based outreach and neighborhood organizations will be used to build awareness of the program and grow participation.</p> <p>ComEd will leverage customer interactions to deliver information about energy efficiency for single-family homes, and obtain customer preferences and contact information, including email addresses that can be used to make ongoing and future communications more efficient and effective.</p> <p>The marketing strategy will also educate customers about general energy efficiency and continue to increase awareness about the benefits of energy efficiency in their homes. Tactics will focus on direct mail, bill inserts, social media, local media, print, and community outreach. Also, a focus on customer referrals will be used leveraging a word-of-mouth strategy. We may consider additional incentives and rewards for participating in additional programs.</p>
Eligible Measures	<p>The program will provide participants with installation of LEDs, water-saving devices, advanced power strips, thermostats, hot-water pipe insulation, and other instant energy-saving measures as well as a high-level energy assessment.</p> <p>Participants will also be encouraged to participate in other utility offerings.</p>

Program Name	Single-Family Assessments				
Program Targets	Participation Levels				
	2018	2019	2020	2021	Total
Total Assessments	620,459	620,459	620,458	620,458	2,481,834

Program Name

Single-Family Assessments

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	21,529	43,057	64,359	71,546	71,546
Net MWh	17,890	35,779	53,464	59,858	59,858
Gross Therms	114,141	228,281	316,830	405,378	405,378
Net Therms	97,764	195,528	270,388	345,247	345,247
Gross MWh (therm conversion)	3,344	6,689	9,283	11,878	11,878
Net MWh (therm conversion)	2,864	5,729	7,922	10,116	10,116
Gross Composite MWh	24,873	28,217	30,812	33,406	33,406
Net Composite MWh	20,754	41,508	61,387	69,973	69,973
First Year Annual Savings					
Gross MWh	21,529	21,529	21,529	18,000	82,586
Net MWh	17,890	17,890	17,890	15,067	68,735
Gross MW	11	11	11	9	43
Net MW	9	9	9	8	35
Gross Therms	114,141	114,141	114,141	114,141	456,563
Net Therms	97,764	97,764	97,764	97,764	391,055
Gross MWh (therm conversion)	3,344	3,344	3,344	3,344	13,377
Net MWh (therm conversion)	2,864	2,864	2,864	2,864	11,458
Gross Composite (MWh)	24,873	24,873	24,873	21,344	95,963
Net Composite (MWh)	20,754	20,754	20,754	17,931	80,193

Program
Name

Single-Family Assessments

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$1,488,000	\$1,488,000	\$1,488,000	\$1,488,000	\$5,952,000
Incentives	\$6,828,242	\$6,812,739	\$6,801,675	\$6,881,458	\$27,324,114
Marketing and Other	\$1,132,500	\$1,027,500	\$1,027,500	\$1,027,500	\$4,215,000
Total	\$9,623,742	\$9,507,614	\$9,501,034	\$9,585,414	\$38,217,804

Cost-Effectiveness Results

	Test Results
TRC	1.34
UCT	0.87
CCE	\$0.081

Program Name	Multi-Family Assessment Program
Program Description	<p>The Multi-Family Assessment program element provides multi-family tenants and property owners and managers with a variety of ways to save electricity and natural gas. The program will serve as a “one stop shop” to generate energy savings throughout the property. After an initial assessment, immediate energy savings are generated by the direct installation of energy-saving products in both tenant and common area spaces. The program further provides trade ally installs of common area lighting and gas measures, such as pipe wrap. Measures not covered by the multi-family program are transferred as leads to other programs. The program will also provide energy efficiency educational materials to participating tenants.</p> <p>The implementation contractor will train and schedule installers to retrofit living units and common area screw-in fixtures in multi-family buildings. Contractors and trade allies will install various energy-efficient products, including energy efficient lighting, throughout the property at no cost. Tenants will receive educational information about the energy savings associated with the devices installed in their units. The implementation contractor will also assist the property owners or managers to enroll the property in ComEd’s online portal to continually monitor building performance via Smart Meter data. This service will be provided at no cost to the property owners or tenants.</p>
Program Duration	January 2018 through December 2021
Collaboration	It is the intent of ComEd, Nicor Gas, and Peoples Gas / North Shore Gas to offer this program jointly. There is a high potential for this program to benefit both gas and electric utility customers. The utilities will determine a framework for cost allocation based on savings/benefits to each utility’s customers. The framework will be fair and equitable and will increase the cost effectiveness of the overall program for participating utilities and their customers.
Delivery Strategy	ComEd will select a single implementation contractor to deliver the program. The contractor will work with ComEd and the gas utilities to develop marketing materials, conduct program marketing and outreach activities, recruit and manage a closed network of trade allies for common area

Program Name	Multi-Family Assessment Program
	<p>work, and provide energy assessments and direct installations in the targeted markets.</p> <p>Key elements of the Multi-Family Assessment Program implementation strategy include:</p> <ul style="list-style-type: none">• Targeted Outreach to Property Owners and Managers: The implementation contractor will work to build close relationships with property management companies, owners, associations, and their members to recruit participation in the program.• Assessment: The implementation contractor will conduct an initial assessment to quantify tenant unit and common area savings opportunities. Opportunities not covered by the multi-family program will be referred to appropriate electric or gas utility program for follow-up. Energy assessors will also assist property owners or managers to enroll the property in ComEd's online portal to continually monitor building performance via Smart Meter data.• Direct Installs: The implementation contractor will schedule installation appointments with interested properties. The contractor will install various energy-saving measures, which may include LEDs in tenant units, water-saving devices, programmable thermostats, pipe insulation, and LEDs in common area screw-in fixtures. The contractor will leave behind educational materials in each tenant unit describing the work performed and promoting energy-saving benefits.• Trade Ally Common Area Installs: The implementation contractor will recruit and manage a closed network of trade allies that will retrofit common area and exterior areas with energy efficient lighting. <p>All installation work must meet rigid performance standards established by ComEd, the gas companies, and the program implementation contractor. ComEd will work with the gas companies to establish inspection protocols for this program, and will require that all work must meet or exceed the utilities' standards.</p>

Program Name	Multi-Family Assessment Program
Target Market	<p>Because this program will be operated jointly with Nicor Gas and Peoples Gas / North Shore Gas, ComEd will target tenants of both gas and all-electric multi-family residential buildings. All such targeted customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>This program's marketing strategy will be to employ highly targeted communication channels to building owners and property managers. We will deliver information about energy efficiency for subject properties, while obtaining contact information to enable more efficient future interactions. The marketing strategy will also educate customers about energy efficiency and continue to raise program awareness.</p> <p>Marketing materials will be co-branded with participating gas utilities and leverage customer interaction as an opportunity to deliver relevant information and obtain customer satisfaction feedback.</p> <p>Key messaging for this program is: (1) joint offering to help your building become more energy efficient; (2) it's easy – participate in a turnkey program that delivers immediate and ongoing energy savings; (3) FREE energy efficient products to keep energy costs down; and (4) FREE installation by qualified technicians.</p>
Eligible Measures	<p>This program provides a free energy assessment, free installation of energy-saving measures, an online portal to monitor electric usage and savings, and energy efficiency educational materials for participating tenants.</p> <p>A crew of technicians will install LEDs and other energy-saving measures, which might include water-saving devices, programmable thermostats, and pipe insulation in tenant units and common areas; an assigned trade ally will retrofit common area lighting. The energy savings for the LEDs and lighting retrofits accrue to ComEd. The other energy-saving devices will accrue to the gas utilities unless these devices are installed in all-electric buildings, in which case the electric savings will then accrue to ComEd. ComEd and the gas utilities may adjust provided measures in accordance with current market conditions.</p>

Program Name	Multi-Family Assessment Program				
Program Targets	Participation Levels				
	2018	2019	2020	2021	Total
Total Residential Units	19,000	19,000	19,000	19,000	76,000
	Annual Savings Targets				
	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	9,523	19,047	28,563	28,474	28,474
Net MWh	9,197	18,394	27,584	27,361	27,361
First Year Annual Savings					
Gross MWh	9,523	9,523	9,523	7,122	35,692
Net MWh	9,197	9,197	9,197	6,844	34,434
Gross MW	3	3	3	2	11
Net MW	3	3	3	2	11
	Program Budget				
	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$929,152	\$929,152	\$929,152	\$929,152	\$3,716,608
Incentives	\$2,830,256	\$2,830,511	\$2,830,511	\$2,830,511	\$11,321,790
Marketing and Other	\$117,273	\$117,273	\$117,273	\$117,273	\$469,092
Total	\$4,051,681	\$4,056,311	\$4,060,795	\$4,065,392	\$16,234,180

Program
Name

Multi-Family Assessment Program

Cost-Effectiveness Results

	Test Results
TRC	2.27
UCT	1.82
CCE	\$0.062

Program Name	HVAC and Weatherization Rebates
Program Description	<p>The Residential HVAC and Weatherization Rebates program element provides incentives for the purchase and installation of high efficiency central air conditioners, heat pump water heaters, ductless heat pumps, air source heat pumps, ground source heat pumps, electronically commutated motor (“ECM”) motors, air sealing, duct sealing, attic and wall insulation, advanced smart thermostats, and other high efficiency electric residential end use equipment.</p> <p>The program offers rebates to invest in long-term savings through more efficient technology. The dollar amount of the rebates may depend on the efficiency of the replacement measures. This program is also designed to make it easier for distributors and contractors to promote energy efficient equipment at the time of equipment replacement.</p>
Program Duration	January 2018 through December 2021
Collaboration	It is our intent, to the extent possible, to offer components of this program in coordination with participating natural gas utilities. There is potential for measures in this program to benefit both gas and electric utility customers through shared trade ally outreach or incentive bonuses for measure bundling.
Delivery Strategy	<p>An implementation contractor will implement all aspects of this program element, which include:</p> <ul style="list-style-type: none"> • Contractor Recruitment and Training: The implementation contractor will recruit contractors to become independent participating contractors. • Customer Recruitment: The primary customer recruitment mechanism will be the direct marketing activities of independent participating contractors. Program information will also be posted on ComEd’s website, provided through a toll-free call center, and distributed in combination with various ComEd customer outreach and marketing tactics. • Project Implementation: The independent participating contractors will deliver services according to the program requirements. • Incentive Application: The independent participating contractors

Program Name	HVAC and Weatherization Rebates
	<p>or customers will submit incentive applications for all qualifying equipment and products; and the implementation contractor will process all applications and incentive payments to ensure that required information and documentation has been provided.</p>
Target Market	<p>This program is designed for residential customers seeking to install or replace residential electric equipment or products with those that result in the more efficient use of electricity. All residential customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>This HVAC and Weatherization Rebates program will be marketed as a tool to take advantage of the market segment of residential customers who are seeking to replace or install electric end use equipment. This will be accomplished by marketing this program to homeowners as a cost- and energy-saving tactic and incenting the customers by helping to cover associated upfront costs.</p> <p>ComEd will leverage existing product market channels to generate program awareness and develop strong partnerships with participating trade allies and other stakeholders.</p> <p>Marketing will utilize specific messaging, targeted campaigns, and behavioral tactics to drive installation of efficient equipment. Tactics will focus on bill inserts, collateral materials, and electronic channels. Messaging is intended to reach residential customers with older, inefficient equipment. Other general marketing collateral will leverage ComEd’s advertising and use web communications to help reach lightly penetrated customer segments. ComEd marketing efforts, the program implementer, and contractors participating in the program will deliver messaging to customers.</p>
Eligible Measures	<p>Eligible measures include the installation of high efficiency central air conditioners, heat pump water heaters, ductless heat pumps, air source heat pumps, ground source heat pumps, ECM motors, air sealing, duct sealing, attic and wall insulation, advanced smart thermostats, and other high efficiency electric residential end use equipment.</p>

Program Name	HVAC and Weatherization Rebates					
Program Targets	Participation Levels					
		2018	2019	2020	2021	Total
	Total Rebates	30,483	30,495	30,515	30,543	122,036

Program Name

HVAC and Weatherization Rebates

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	13,702	27,457	41,297	55,258	55,258
Net MWh	9,663	19,357	29,102	38,917	38,917
Gross Therms	32,058	64,117	96,175	128,234	128,234
Net Therms	32,379	64,758	97,137	129,516	129,516
Gross MWh (therm conversion)	939	1,879	2,818	3,757	3,757
Net MWh (therm conversion)	949	1,897	2,846	3,795	3,795
Gross Composite MWh	14,642	15,581	16,520	17,460	17,460
Net Composite MWh	10,612	21,254	31,948	42,712	42,712
First Year Annual Savings					
Gross MWh	13,702	13,754	13,840	13,961	55,258
Net MWh	9,663	9,694	9,745	9,816	38,917
Gross MW	7	7	7	7	29
Net MW	5	5	5	5	21
Gross Therms	32,058	32,058	32,058	32,058	128,234
Net Therms	32,379	32,379	32,379	32,379	129,516
Gross MWh (therm conversion)	939	939	939	939	3,757
Net MWh (therm conversion)	949	949	949	949	3,795
Gross Composite (MWh)	14,642	14,694	14,780	14,901	59,016
Net Composite (MWh)	10,612	10,642	10,693	10,765	42,712

Program Name

HVAC and Weatherization Rebates

Program Budget

	2018	2019	2020	2021	Total
Administration	\$437,500	\$448,438	\$459,648	\$471,140	\$1,816,725
Implementation	\$1,290,758	\$1,308,557	\$1,324,705	\$1,343,957	\$5,267,978
Incentives	\$5,851,208	\$5,887,208	\$5,947,208	\$6,031,208	\$23,716,832
Marketing and Other	\$260,000	\$260,000	\$260,000	\$260,000	\$1,040,000
Total	\$7,839,466	\$7,904,203	\$7,991,560	\$8,106,305	\$31,841,535

Cost-Effectiveness Results

	Test Results
TRC	1.79
UCT	2.60
CCE	\$0.066

Program Name	Elementary Energy Education Kits
Program Description	<p>The Residential Elementary Energy Education Kits program element will target mostly fifth grade students in schools that are customers of the sponsoring utilities. As part of the program, an energy efficiency educational curriculum will be provided with take-home kits that raise awareness about how individual actions and low-cost measures can provide significant energy savings. The program's take-home kit may include energy efficiency products such as LEDs, a high-efficiency showerhead, and high-efficiency faucet aerators.</p> <p>The objective of the Residential Elementary Energy Education Kits program is to encourage students and their families to take actions that can reduce their home energy usage and increase their energy efficiency.</p>
Program Duration	January 2018 through December 2021
Collaboration	<p>It is the intent of ComEd, Nicor Gas, and Peoples Gas / North Shore Gas to offer this program jointly. This program will benefit both gas and electric utility customers. In addition, the utilities will collaborate in raising awareness of, and educating participants about, the benefits of energy efficiency.</p> <p>The utilities will determine a framework for cost allocation based on savings/benefits to each utility's customers. The framework will be fair and equitable and will increase the cost effectiveness of the overall program for participating utilities and their customers.</p>
Delivery Strategy	<p>The implementation contractor selected jointly with the gas utilities will deliver the program. The implementation contractor will be responsible for school recruitment, program delivery, and tabulation of results. Implementation-related administrative requirements will include:</p> <ul style="list-style-type: none"> • Developing age appropriate curricula; • Developing, assembling, distributing, and tracking the kits and their components; • Creating and managing marketing, outreach and public relations; • Data tracking and reporting; and

Program Name	Elementary Energy Education Kits
	<ul style="list-style-type: none"> • Customer satisfaction / complaint resolution. <p>Generally, schools will receive an invitation to participate and register to receive the kits and program curriculum. As part of the curriculum, students will receive a take-home energy efficiency kit that includes products such as LEDs, a high-efficiency showerhead, and aerators. It is the implementation contractor's responsibility to establish and implement a process, agreeable to the utilities, for measuring and tracking energy savings and participant data.</p>
Target Market	<p>Because this program will be operated jointly with Nicor Gas and Peoples Gas / North Shore Gas, ComEd will target both gas and electric customers. All such targeted schools taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>It is vital to reach out to schoolchildren with important and timely energy efficiency messages. Today's students are not only ComEd's future customers, but they also have an influence on current energy usage in their homes and in their schools. Marketing will be directed mostly to elementary schools (with primarily fifth grade students) within the utilities' service territories through letters and electronic communications utilized specifically by teachers and education administrators. All educational materials and take-home efficiency kits will be free of charge to the schools and the students.</p> <p>The primary focus is to produce energy efficiency savings in the residential sector by motivating students and their families to take steps through reducing energy consumption for water heating and lighting in their homes. Additionally, the program also aims to increase awareness of and participation in the utilities' other programs via cross-marketing and increased customer awareness of energy efficiency behaviors.</p>
Eligible Measures	<p>This program's eligible measures will consist of a take-home kit that includes three LEDs, a high-efficiency showerhead, faucet aerators, water heater temperature setback instructions, and a shower timer.</p> <p>The energy savings for the LEDs will accrue to ComEd. The energy savings for the water-saving devices will accrue to the gas utilities unless</p>

Program Name	Elementary Energy Education Kits					
	these devices are installed in homes with electric hot water heating, whereby the electric savings will then accrue to ComEd.					
Program Targets	Participation Levels					
		2018	2019	2020	2021	Total
	Total Kits	25,895	25,895	25,895	25,895	103,580

Program Name

Elementary Energy Education Kits

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	2,074	4,419	6,960	5,207	5,207
Net MWh	2,074	4,419	6,960	5,207	5,207
Gross Therms	87,916	175,831	256,551	337,270	337,270
Net Therms	87,916	175,831	256,551	337,270	337,270
Gross MWh (therm conversion)	2,576	5,152	7,517	9,882	9,882
Net MWh (therm conversion)	2,576	5,152	7,517	9,882	9,882
Gross Composite MWh	4,650	7,226	9,591	11,956	11,956
Net Composite MWh	4,650	9,571	14,477	15,089	15,089
First Year Annual Savings					
Gross MWh	2,074	2,345	2,574	1,377	8,371
Net MWh	2,074	2,345	2,574	1,377	8,371
Gross MW	1	1	1	1	4
Net MW	1	1	1	1	4
Gross Therms	87,916	87,916	87,916	87,916	351,663
Net Therms	87,916	87,916	87,916	87,916	351,663
Gross MWh (therm conversion)	2,576	2,576	2,576	2,576	10,304
Net MWh (therm conversion)	2,576	2,576	2,576	2,576	10,304
Gross Composite (MWh)	4,650	4,921	5,150	3,953	18,674
Net Composite (MWh)	4,650	4,921	5,150	3,953	18,674

Program
Name

Elementary Energy Education Kits

Program Budget

	2018	2019	2020	2021	Total
Administration	\$43,750	\$44,844	\$45,965	\$47,114	\$181,673
Implementation	\$0	\$0	\$0	\$0	\$0
Incentives	\$698,233	\$698,233	\$698,233	\$698,233	\$2,792,933
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$741,983	\$743,077	\$744,198	\$745,347	\$2,974,606

Cost-Effectiveness Results

	Test Results
TRC	1.98
UCT	1.38
CCE	\$0.111

Program Name	Residential New Construction
Program Description	<p>The Residential New Construction program element is designed to increase awareness and understanding among Home Energy Rating System (“HERS”) rating companies and home-builders of the benefits of energy-efficient building practices, with a focus on capturing energy efficiency opportunities that are available during the design and construction of new single-family homes.</p> <p>Particular emphasis will be placed on (and incentives targeted at) building homes that exceed the 2015 Illinois Energy Conservation Code (“2015 IEC Code”) by at least 20%.</p>
Program Duration	January 2018 through December 2021
Collaboration	There is a high potential for this program to benefit both gas and electric utility customers. The utilities will determine a framework for cost allocation based on savings/benefits to each utility’s customers. The framework will be fair and equitable and will increase the cost effectiveness of the overall program for participating utilities and their customers.
Delivery Strategy	<p>An implementation contractor selected by ComEd in conjunction with participating natural gas utilities will deliver the program.</p> <p>Key elements of the implementation strategy include:</p> <ul style="list-style-type: none"> • Rater & Builder Recruitment: The primary recruitment effort will target HERS rating companies and home-builders in ComEd’s service territory, with recruitment occurring through individual contact, group outreach events and involvement in local industry organizations, publications, and training events. Raters and builders participating in the program will receive regular communications about program activities to ensure that they are informed and engaged participants. • Customer Recruitment: The primary customer messaging will be that homes built to higher energy efficiency standards can reduce overall energy use, cost less to operate, and provide greater comfort. • Technical Assistance: The implementation contractor will provide training and guidance regarding program offerings and participation processes to raters and builders as needed to minimize confusion and

Program Name	Residential New Construction
	<p>barriers to participation.</p> <ul style="list-style-type: none"> • Project Verification: Program verification will occur through the independent local HERS rating companies that participate in the program as they conduct site inspections and report on the efficiency level of each home enrolled in the program when construction is complete. Separate quality assurance and quality control requirements performed by the implementation contractor are also required. ComEd reserves the right to site-verify projects prior to payment of any incentive. <p>The implementation contractor is responsible for educating and training the primary trade allies (<i>i.e.</i>, home-builders and home raters). The implementation contractor will conduct periodic training sessions detailing the requirements and administrative functions for participating in the program. The implementation contractor may also plan sessions that focus on the fundamentals of building science for this same audience.</p>
Target Market	<p>This program will be operated jointly with participating natural gas utilities and will target new single-family homes that are being built in areas that take delivery service from both ComEd and the participating natural gas utilities regardless of their choice of suppliers.</p>
Marketing Strategy	<p>The marketing strategy will focus on raising awareness and creating action among both HERS rating companies and home-builders that are directly involved in the process of constructing new single-family homes. Messaging will emphasize that there are distinct advantages to using energy-efficient building practices and installing energy-efficient components during the initial building construction.</p> <p>The program will be promoted to HERS rating companies and home builders using various targeted marketing tactics, including direct outreach and involvement in local industry organizations, publications, and training events. The implementation contractor will provide all recruitment and training services for the program. The participating HERS rating companies are an integral actor in promoting the program to home builders in addition to the efforts by the implementation contractor. This comprehensive effort is intended to communicate the benefits of the program and teach and motivate home builders to differentiate themselves in the marketplace by building homes that exceed the current</p>

Program Name	Residential New Construction												
	<p>energy code. The implementation contractor is also responsible for leading the creation and development of all marketing materials, including webpage content, builder and rater fact sheet, and a homeowner's certification letter.</p> <p>The marketing effort must deliver both knowledge about the benefits of energy efficiency and the availability of this program's elements. The program will provide a tangible benefit/incentive to influence the home builders to participate.</p> <p>Key messaging for this program includes: (1) take advantage of ComEd's energy efficiency component programs right from the start; (2) reduce your future energy bills by installing energy-efficient components in your new home; (3) our reliable and cost-effective energy efficiency programs help protect your new investment; and (4) building suppliers - be a trusted advisor and deliver value to your home purchasers by recommending energy-efficient components right from the start.</p>												
Eligible Measures	<p>The eligible measures begin with the building of homes that exceed the 2015 IECC Code by at least 20%. ComEd reserves the right to revise eligible measures and incentives as needed in accordance with current market conditions, technology development, EM&V results, the joint program operation with the participating natural gas utilities, and implementation experience.</p>												
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 1398 1408 1556"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Number of Homes</td> <td>800</td> <td>800</td> <td>800</td> <td>800</td> <td>3,200</td> </tr> </tbody> </table>		2018	2019	2020	2021	Total	Total Number of Homes	800	800	800	800	3,200
	2018	2019	2020	2021	Total								
Total Number of Homes	800	800	800	800	3,200								

Program Name

Residential New Construction

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	878	1,756	2,634	3,512	3,512
Net MWh	571	1,141	1,712	2,283	2,283
First Year Annual Savings					
Gross MWh	878	878	878	878	3,512
Net MWh	571	571	571	571	2,283

Program Budget

	2018	2019	2020	2021	Total
Administration	\$43,750	\$44,844	\$45,965	\$47,114	\$181,673
Implementation	\$118,131	\$118,131	\$118,131	\$118,131	\$472,526
Incentives	\$210,184	\$210,184	\$210,184	\$210,184	\$840,736
Marketing and Other	\$20,000	\$20,000	\$20,000	\$20,000	\$80,000
Total	\$392,065	\$393,159	\$394,280	\$395,429	\$1,574,934

Cost-Effectiveness Results

	Test Results
TRC	2.11
UCT	3.59
CCE	\$0.036

Program Name	The National Theatre For Children – Energy Education Kits Program
Program Description	The National Theatre for Children (NTC) will use its unique, multi-platform approach (based in live, professional theater) to cause parents and guardians of middle school students throughout the ComEd territory to request energy efficiency kits through this program. There will be two different kits, one for homes with electric water heaters and the other for those with gas water heaters. The program is designed to help 6th through 8th grade middle school students and their families understand the importance of wise and efficient energy use so they can develop good energy habits. The objective of the Energy Education Kits Program is to encourage students and their families to take actions that can reduce their home energy usage and increase their energy efficiency.
Program Duration	January 2018 through December 2018 (1 year)
Collaboration	None.
Delivery Strategy	<p>NTC is to deliver The Resource Force Middle School Energy Education Campaign into 6th, 7th and 8th grade schools in ComEd's service territory. This program will cause the parents or guardians of middle school students to request energy efficiency kits for their homes. During the request process, they are asked whether they have gas or electric water heaters. Based on their answers, they receive by mail one of two kits – the electric water heater energy efficiency kit or the gas water heater energy efficiency kit. The content of each is designed to provide the best kWh savings at the best cost for ComEd. Having a parent or guardian personally request a kit and having it delivered to their home has a number of key advantages over shipping to the school and asking the students to take them home:</p> <ul style="list-style-type: none"> • There is more certainty that the kit arrives at the home – all in one piece • Shipping to homes increases the perceived value of the kit and program • Maximizes the installation
Target Market	This program targets residential single-family customers in ComEd's service territory. All such targeted customers taking delivery service from ComEd are eligible for this program regardless of their choice of electric

Program Name	The National Theatre For Children – Energy Education Kits Program																								
	supplier.																								
Marketing Strategy	<p>The program is based on a multi-platform educational touring program called The Resource Force, which aligns with Common Core and Illinois Next Generation Science Standards in English and Language Arts, Math and Science. It helps 6th through 8th grade middle school students and their families understand the importance of wise and efficient energy use so they can develop good energy habits. Unlike the one-grade-at-a-time curriculums for delivering kits, NTC’s Energy Education Campaign features live, educational theatre performances powered by field representatives who are professional actors that are attended by every student at each school. Using NTC’s unique marketing approach and activation systems, parents of these students request an energy efficiency kit that contains specific measures for their water heating environment – kits with components that deliver kWh savings in a home with an electric water heater or kits with components that deliver kWh savings in a home with a gas water heater.</p>																								
Eligible Measures	<p>This program will cause the parents of middle school students to request energy efficiency kits for their homes. During the request process, they are asked whether they have gas or electric water heaters. Based on their answers, they receive by mail one of two kits – the electric water heater energy efficiency kit or the gas water heater energy efficiency kit. The content of each is designed to provide the best kWh savings at the best cost for ComEd. Contents of kits will include:</p> <table border="1" data-bbox="443 1440 1354 1816"> <thead> <tr> <th colspan="2" data-bbox="443 1440 1206 1482">Electric Water Heater Kit Contents</th> <th data-bbox="1214 1440 1354 1482">Units/Kit</th> </tr> </thead> <tbody> <tr> <td data-bbox="443 1482 1206 1556">1.5 GPM Kitchen Faucet aerator with swivel and flip valves</td> <td data-bbox="1214 1482 1354 1556"></td> <td data-bbox="1214 1482 1354 1556">1</td> </tr> <tr> <td data-bbox="443 1556 1206 1598">1.0 GPM needle spray bathroom/Kitchen faucet aerator</td> <td data-bbox="1214 1556 1354 1598"></td> <td data-bbox="1214 1556 1354 1598">1</td> </tr> <tr> <td data-bbox="443 1598 1206 1640">1.5 GPM low flow chrome shower head</td> <td data-bbox="1214 1598 1354 1640"></td> <td data-bbox="1214 1598 1354 1640">1</td> </tr> <tr> <td data-bbox="443 1640 1206 1682">9w LED lamp, 800 lumens, energy star, fully dimmable</td> <td data-bbox="1214 1640 1354 1682"></td> <td data-bbox="1214 1640 1354 1682">2</td> </tr> <tr> <th colspan="2" data-bbox="443 1682 1206 1724">Gas Water Heater Kit Contents</th> <th data-bbox="1214 1682 1354 1724">Units/Kit</th> </tr> <tr> <td data-bbox="443 1724 1206 1766">9w LED lamp, 800 lumens, energy star, fully dimmable</td> <td data-bbox="1214 1724 1354 1766"></td> <td data-bbox="1214 1724 1354 1766">4</td> </tr> <tr> <td data-bbox="443 1766 1206 1816">7 plug Smart Strip w/Auto Shut Off</td> <td data-bbox="1214 1766 1354 1816"></td> <td data-bbox="1214 1766 1354 1816">1</td> </tr> </tbody> </table>	Electric Water Heater Kit Contents		Units/Kit	1.5 GPM Kitchen Faucet aerator with swivel and flip valves		1	1.0 GPM needle spray bathroom/Kitchen faucet aerator		1	1.5 GPM low flow chrome shower head		1	9w LED lamp, 800 lumens, energy star, fully dimmable		2	Gas Water Heater Kit Contents		Units/Kit	9w LED lamp, 800 lumens, energy star, fully dimmable		4	7 plug Smart Strip w/Auto Shut Off		1
Electric Water Heater Kit Contents		Units/Kit																							
1.5 GPM Kitchen Faucet aerator with swivel and flip valves		1																							
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Gas Water Heater Kit Contents		Units/Kit																							
9w LED lamp, 800 lumens, energy star, fully dimmable		4																							
7 plug Smart Strip w/Auto Shut Off		1																							

Program Name	The National Theatre For Children – Energy Education Kits Program				
Program Targets	Participation Levels				
	2018	2019	2020	2021	Total
Total Kits	7,612	0	0	0	7,612
	Annual Savings Targets				
	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	1,381	1,381	1,381	1,381	1,381
Net MWh	1,267	1,369	1,456	1,131	1,131
First Year Annual Savings					
Gross MWh	1,381	102	86	-	1,570
Net MWh	1,267	88	76	-	1,431
Gross MW	1	0	0	-	1
Net MW	0	0	0	-	1
	Program Budget				
	2018	2019	2020	2021	Total
Administration	\$0	\$0	\$0	\$0	\$0
Implementation	\$0	\$0	\$0	\$0	\$0
Incentives	\$664,083	\$0	\$0	\$0	\$664,083
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$664,083	\$0	\$0	\$0	\$664,083

Program
Name

The National Theatre For Children – Energy Education Kits Program

Cost-Effectiveness Results

	Test Results
TRC	0.86
UCT	0.86
CCE	\$0.086

Smart Thermostats – ComEd’s Aspiration

Smart thermostats offer a new and unique opportunity for significant energy savings – both electric and gas. Smart thermostat technology has been evolving over the past several years and new products continue to be introduced into the marketplace. In addition, the communication and automated control aspects of this technology provide opportunities for customer engagement coupled with additional seasonal and optimization savings.

We have introduced smart thermostats into our energy efficiency portfolio through three residential program channels – Home Energy Assessment (*direct install by a utility representative*), Heating & Cooling Rebates (*trade ally network*), and Appliance Rebates (*retail purchases*). Through these three separate channels, we have been making smart thermostats available at a discount to our residential customers. Our natural gas company partners have joined in this effort.

For this Plan, we intend to continue to offer incentives on select smart thermostats through the same three channels, offering residential customers several ways in which to obtain this exciting technology. Our Plan modeled smart thermostats at over 100,000 thermostats per year. This total reflects our discussions with a wide range of market actors, which helped our understanding of what is achievable. In 2015, ComEd’s CEO, along with key stakeholders, set an aspirational goal of 1,000,000 smart thermostats installed in our service territory. While aspirational in nature, we believe the goal reflects our commitment to smart thermostats and their energy efficiency potential.

Income-Eligible Program Elements

There are six programs dedicated solely to income-eligible customers. Traditionally, higher incentives are required to engage this customer base, making these programs more expensive on a cents-per-kWh basis than many of the traditional energy efficiency programs. The income-eligible program elements are projected to provide CPAS of 78,689 MWh, 153,592 MWh, 228,510 MWh and 275,686 MWh for 2018, 2019, 2020, and

2021, respectively. These programs are expected to attain 4% of our total CPAS goal in 2018, 5% in 2019, 5% in 2020, and 4% in 2021.

We realize the importance of providing as much assistance as possible to this important customer segment. As such, while Section 8-103B(c) requires a minimum of \$25 million per year to be spent on the income-eligible customer segment, we have been able to develop a cost-effective portfolio that will achieve all statutory savings goals while still providing an approximate 60% increase in funding (over the statutory minimum) to this important customer segment.

The following pages present descriptions of the income-eligible programs.

Statutory Requirement and the Income-Eligible Customer

ComEd approached the development of Plan 5 with a primary objective to achieve all of the statutory requirements in the Act. These requirements had to be the first step in the portfolio development.

ComEd understood early in the process that there was a desire from some stakeholders to increase income-eligible funding. We took this request to heart, and believe we have been very successful in balancing our portfolio to achieve all statutory requirements while also offering a 60% increase in income-eligible program funding.

Program Name	Income-Eligible Lighting Discounts
Program Description	<p>The Income-Eligible Residential Lighting Discounts program is designed to increase the market share of ENERGY STAR® certified LED lighting products sold through retail sales channels by providing instant discounts (at the time of sale) to decrease customer costs, as well as information and education to increase consumer awareness and acceptance of energy efficient lighting technology.</p> <p>Instant discounts will minimize the burden on the target market by lowering barriers to participation. Select ENERGY STAR certified LED lighting products will be listed at a lower retail price on the store shelves.</p> <p>ComEd will continue to partner with an implementation contractor who will establish partnerships with midstream channel actors (retailers and their suppliers) to provide income eligible customers with instant discounts on select ENERGY STAR certified LED lighting products.</p> <p>A midstream program approach leverages the normal retail sales channels for ENERGY STAR certified LED lighting products, creating opportunities for cooperative promotions with retailers and manufacturers, and supporting long-term market transformation goals. A midstream approach also facilitates quick program ramp-up and provides detailed data to support evaluation of program impacts.</p>
Program Duration	January 2018 through December 2021
Collaboration	None
Delivery Strategy	<p>ComEd will continue to partner with a residential lighting implementation contractor to provide services as described in this Plan.</p> <p>Key elements of the implementation strategy include:</p> <ul style="list-style-type: none"> • Retailer/Manufacturer Recruitment: ComEd will issue an RFP to solicit participation by retailers and manufacturers in ComEd’s service territory. The RFP will specify program requirements, such as product specifications and performance criteria, product stocking objectives based on anticipated rebate volume, and data sharing requirements. An MOU will be signed with selected retailers and manufacturers that delineate roles and responsibilities and each

Program Name	Income-Eligible Lighting Discounts
	<p>party's commitments in support of programmatic objectives.</p> <ul style="list-style-type: none"> Retailer Education and Outreach: During program implementation, field staff will maintain regular contact with participating retailers to ensure the following: (1) retail sales staff are informed about the program offering, instant discount process, and benefits of ENERGY STAR certified LED lighting products; (2) the instant discounts are ringing up correctly at the cash registers; (3) point-of-purchase displays are displayed properly and qualifying products are stocked in accordance with retailer commitments; and (4) program staff are responsive to retailer concerns and issues can be addressed promptly. The program will also inform retailers well in advance of planned promotional activities and cooperative advertising opportunities. Incentive Processing: ComEd's program implementation contractor will provide prompt processing of incentive payments to retailers/manufacturers. Since prompt incentive payment is essential to retailer satisfaction and ongoing program engagement, ComEd will work with the implementation contractor to establish processes and procedures that expedite incentive payments.
Target Market	<p>The Income-Eligible Residential Lighting Discounts program will be targeted in retail sale channels that serve, in part or in full, ComEd residential customers with incomes at or below 80% of the Area Median Income purchasing lighting products. All income-eligible residential customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>The overall marketing strategy will be to leverage customer interactions at the point-of-sale to deliver information about ENERGY STAR certified LED lighting products available for instant discounts. ComEd will also use that customer touch-point to obtain customers' preferences and contact information to maximize future communications about energy efficiency education and awareness. Marketing will utilize specific messaging, targeted campaigns, measurable sales comparisons, and behavioral marketing tactics.</p> <p>Tactics will focus on point-of-purchase communications, such as in-store signage identifying discounted products, demos, and product</p>

Program Name	Income-Eligible Lighting Discounts												
	<p>placement/special displays at select retail partners. Other tactics may include: bill inserts, general consumer education and awareness, mass marketing, direct mail, and electronic marketing. Where possible, tactics will include feedback mechanisms such as customer satisfaction surveys and email collection for future messaging about energy efficiency. ComEd will work closely with the implementation contractor to develop and coordinate the timing of promotional campaigns.</p> <p>Marketing materials will include the ENERGY STAR brand as a trusted source of quality products.</p>												
Eligible Measures	<p>The eligible measures under this program are ENERGY STAR certified LED bulbs (standard and specialty) and fixtures; however, ComEd may revise eligible measures and instant discount incentive amounts as needed in accordance with current market conditions, technology development, EM&V results, and program implementation experience.</p>												
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 1150 1409 1297"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Bulbs and Fixtures</td> <td>737,599</td> <td>466,096</td> <td>496,517</td> <td>555,449</td> <td>2,255,661</td> </tr> </tbody> </table>		2018	2019	2020	2021	Total	Total Bulbs and Fixtures	737,599	466,096	496,517	555,449	2,255,661
	2018	2019	2020	2021	Total								
Total Bulbs and Fixtures	737,599	466,096	496,517	555,449	2,255,661								

Program Name

Income-Eligible Lighting Discounts

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	27,783	27,783	27,783	27,783	27,783
Net MWh	16,494	29,265	42,849	53,359	53,359
First Year Annual Savings					
Gross MWh	27,783	21,365	22,767	25,547	97,461
Net MWh	16,494	12,771	13,584	15,197	58,046
Gross MW	16	12	13	15	56
Net MW	10	7	8	9	34

Program Budget

	2018	2019	2020	2021	Total
Administration	\$26,250	\$26,906	\$27,579	\$28,268	\$109,004
Implementation	\$296,141	\$370,729	\$390,112	\$438,569	\$1,495,551
Incentives	\$4,045,739	\$3,337,737	\$3,511,803	\$3,946,967	\$14,842,247
Marketing and Other	\$100,000	\$126,362	\$132,952	\$149,429	\$508,743
Total	\$4,468,130	\$3,861,735	\$4,062,446	\$4,563,234	\$16,955,545

Cost-Effectiveness Results

	Test Results
TRC	13.88
UCT	1.67
CCE	\$0.032

Program Name	Income-Eligible Single-Family Retrofit
Program Description	This program element will provide comprehensive energy efficiency retrofits to income-eligible single-family households in the ComEd service territory. The program will offer assessments, direct installation of energy-saving devices, replacement of inefficient equipment/systems, and technical assistance to support implementation and, as needed, resolve health and safety issues. Participants also will receive educational information about easy, energy-saving actions they can take to reduce their energy bills.
Program Duration	January 2018 through December 2021
Collaboration	This program will be offered jointly or in coordination with Nicor Gas and Peoples Gas / North Shore Gas where appropriate.
Delivery Strategy	This program will be delivered by one or more organizations who have demonstrated capabilities to serve the target market, with a preference for nonprofit entities and government agencies that have existing relationships with, or experience serving, low-income communities in Illinois.
Target Market	<p>This program will be targeted toward income-eligible single-family households with incomes at or below 80% of the Area Median Income. The target market will include:</p> <ul style="list-style-type: none"> • Single-family homes served by statewide Weatherization Assistance Programs such as the Illinois Home Weatherization Assistance Program (IHWAP). • Owners of older, energy-intensive residential building types, such as bungalows. • Single-family home owners in qualified geographic areas (e.g., Census tracts), with a secondary compliance method of allowing owners whose buildings are not in designated area to qualify by submitting third-party verification of eligibility (e.g., Chicago Low Income Housing Trust Fund, Illinois DHS SNAP program).
Marketing Strategy	Marketing will be coordinated and aligned to provide a single message to targeted customers. This will build on existing marketing channels already in use by nonprofit entities and government agencies that have existing relationships with, or experience serving, low-income communities.

Program Name	Income-Eligible Single-Family Retrofit																	
	ComEd will supplement marketing to properties participating in IHWAP, as needed. Eligible home owners targeted for program delivery outside of IHWAP will be marketed to via direct mail and social media, and through partner outreach and events. Marketing also will also be done through ComEd’s customer assistance programs, which provide bill payment assistance and help for customers with special needs.																	
Eligible Measures	Eligible measures will include LED lighting, programmable and smart thermostats, advanced power strips, faucet aerators, low-flow showerheads, pipe insulation, furnaces, central air conditioners, water heaters, boiler tune-ups and replacements, ductless heat pumps, air sealing, attic and wall insulation, and air conditioning window units.																	
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 898 1406 1045"> <thead> <tr> <th data-bbox="370 898 607 951"></th> <th data-bbox="607 898 756 951">2018</th> <th data-bbox="756 898 922 951">2019</th> <th data-bbox="922 898 1071 951">2020</th> <th data-bbox="1071 898 1221 951">2021</th> <th data-bbox="1221 898 1406 951">Total</th> </tr> </thead> <tbody> <tr> <td data-bbox="370 951 607 1045">Total Assessments</td> <td data-bbox="607 951 756 1045">104,931</td> <td data-bbox="756 951 922 1045">104,931</td> <td data-bbox="922 951 1071 1045">104,907</td> <td data-bbox="1071 951 1221 1045">104,907</td> <td data-bbox="1221 951 1406 1045">419,676</td> </tr> </tbody> </table>							2018	2019	2020	2021	Total	Total Assessments	104,931	104,931	104,907	104,907	419,676
	2018	2019	2020	2021	Total													
Total Assessments	104,931	104,931	104,907	104,907	419,676													

Program Name	Income-Eligible Single-Family Retrofit				
Annual Savings Targets					
	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	6,985	13,970	20,921	27,293	27,293
Net MWh	6,985	13,970	20,921	27,293	27,293
Gross Therms	349,525	699,051	1,039,693	1,380,336	1,380,336
Net Therms	349,525	699,051	1,039,693	1,380,336	1,380,336
Gross MWh (therm conversion)	10,241	20,482	30,463	40,444	40,444
Net MWh (therm conversion)	10,241	20,482	30,463	40,444	40,444
Gross Composite MWh	17,226	34,452	51,384	67,736	67,736
Net Composite MWh	17,226	34,452	51,384	67,736	67,736
First Year Annual Savings					
Gross MWh	6,985	6,985	6,982	6,838	27,790
Net MWh	6,985	6,985	6,982	6,838	27,790
Gross MW	5	5	5	5	19
Net MW	5	5	5	5	19
Gross Therms	349,525	349,525	349,464	349,464	1,397,978
Net Therms	349,525	349,525	349,464	349,464	1,397,978
Gross MWh (therm conversion)	10,241	10,241	10,239	10,239	40,961
Net MWh (therm conversion)	10,241	10,241	10,239	10,239	40,961
Gross Composite (MWh)	17,226	17,226	17,222	17,077	68,751
Net Composite (MWh)	17,226	17,226	17,222	17,077	68,751

Program Name	Income-Eligible Single-Family Retrofit					
	Program Budget					
		2018	2019	2020	2021	Total
	Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
	Implementation	\$1,024,471	\$1,023,580	\$1,022,730	\$1,023,265	\$4,094,046
	Incentives	\$10,244,714	\$10,235,800	\$10,227,301	\$10,232,648	\$40,940,462
	Marketing and Other	\$204,894	\$204,716	\$204,546	\$204,653	\$818,809
	Total	\$11,649,080	\$11,643,470	\$11,638,436	\$11,649,021	\$46,580,008
	Cost-Effectiveness Results					
			Test Results			
	TRC		0.81			
UCT		1.42				
CCE		\$0.139				

Program Name	Income-Eligible Multi-Family Retrofit
Program Description	<p>This program element will provide comprehensive energy efficiency retrofits in common areas and tenant spaces to eligible multi-family properties in the ComEd service territory. The program will serve as a “one stop shop” to multi-family building owners and managers whose buildings are targeted to income-eligible residents. Building owners, managers, and tenants will benefit from the results of energy assessments, direct installation of energy-saving devices, and replacement of inefficient equipment/ systems at no cost. For energy efficiency projects requiring funding beyond program incentives, technical assistance will be offered to support implementation and identify financing options. Funds are available to resolve health and safety issues related to the efficiency project moving forward. Participants also will receive educational information about easy, energy-saving actions they can take to reduce their energy bills. The implementation contractor will assist property owners or managers to enroll their properties in ComEd’s online portal to continually monitor building performance via Smart Meter data.</p>
Program Duration	January 2018 through December 2021
Collaboration	This program will be offered jointly with Nicor Gas and Peoples Gas / North Shore Gas.
Delivery Strategy	This program will be delivered by one or more organizations who have demonstrated capabilities to serve the target market, with a preference for nonprofit entities and government agencies that have existing relationships with, or experience serving, low-income communities in Illinois.
Target Market	<p>This program will be targeted toward multi-family properties that serve, in part or in full, renters with incomes at or below 80% of the Area Median Income. The target market will include</p> <ul style="list-style-type: none"> • Multi-family properties served by the IHWAP. • Nonprofits that manage HUD 811 housing for people with disabilities and HUD 202 housing for elderly people. • Multi-family building owners, managers, and tenants in qualified geographic areas (e.g., Census tracts), with a secondary compliance method of allowing owners whose buildings are not in

Program Name	Income-Eligible Multi-Family Retrofit																	
	designated areas to qualify by verifying the income of their tenants.																	
Marketing Strategy	<p>Marketing will be coordinated and aligned to provide a single message to targeted customers, property managers, and owners. This will build on existing marketing channels already in use by nonprofit entities and government agencies that have existing relationships with, or experience serving, low-income communities.</p> <p>ComEd will supplement marketing to properties participating in IHWAP, as needed. Nonprofits that manage HUD 811 and HUD 202 housing, and multi-family building owners and managers, will be marketed to via direct mail and social media, and through partner outreach and events. Marketing also will also be done through ComEd's customer assistance programs, which provide bill payment assistance and help for customers with special needs.</p>																	
Eligible Measures	<p>Eligible measures will include LED and energy efficient lighting retrofits, programmable thermostats, advanced power strips, faucet aerators, low-flow showerheads, pipe insulation, furnaces, water heaters, boiler tune-ups and replacements, ductless heat pumps, air sealing, attic and wall insulation, and air conditioning window units. Funds are available to resolve health and safety issues related to implementation of the efficiency project.</p>																	
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 1360 1406 1507"> <thead> <tr> <th data-bbox="370 1360 607 1415"></th> <th data-bbox="607 1360 760 1415">2018</th> <th data-bbox="760 1360 912 1415">2019</th> <th data-bbox="912 1360 1065 1415">2020</th> <th data-bbox="1065 1360 1218 1415">2021</th> <th data-bbox="1218 1360 1406 1415">Total</th> </tr> </thead> <tbody> <tr> <td data-bbox="370 1415 607 1507">Total Assessments</td> <td data-bbox="607 1415 760 1507">5,694</td> <td data-bbox="760 1415 912 1507">5,694</td> <td data-bbox="912 1415 1065 1507">5,694</td> <td data-bbox="1065 1415 1218 1507">5,694</td> <td data-bbox="1218 1415 1406 1507">22,777</td> </tr> </tbody> </table>							2018	2019	2020	2021	Total	Total Assessments	5,694	5,694	5,694	5,694	22,777
	2018	2019	2020	2021	Total													
Total Assessments	5,694	5,694	5,694	5,694	22,777													

Program Name

Income-Eligible Multi-Family Retrofit

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	4,877	4,877	4,877	4,877	4,877
Net MWh	4,877	9,755	14,630	16,440	16,440
Gross Therms	498,868	997,736	1,494,708	1,988,900	1,988,900
Net Therms	498,868	997,736	1,494,708	1,988,900	1,988,900
Gross MWh (therm conversion)	14,617	29,234	43,795	58,275	58,275
Net MWh (therm conversion)	14,617	29,234	43,795	58,275	58,275
Gross Composite MWh	19,494	34,111	48,672	63,152	63,152
Net Composite MWh	19,494	38,988	58,425	74,714	74,714
First Year Annual Savings					
Gross MWh	4,877	4,877	4,877	4,111	18,743
Net MWh	4,877	4,877	4,877	4,111	18,743
Gross MW	2	2	2	1	6
Net MW	2	2	2	1	6
Gross Therms	498,868	498,868	498,868	498,868	1,995,471
Net Therms	498,868	498,868	498,868	498,868	1,995,471
Gross MWh (therm conversion)	14,617	14,617	14,617	14,617	58,467
Net MWh (therm conversion)	14,617	14,617	14,617	14,617	58,467
Gross Composite (MWh)	19,494	19,494	19,494	18,728	77,211
Net Composite (MWh)	19,494	19,494	19,494	18,728	77,211

Program
Name

Income-Eligible Multi-Family Retrofit

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$1,378,803	\$1,378,803	\$1,378,803	\$1,378,803	\$5,515,213
Incentives	\$6,565,730	\$6,565,730	\$6,565,730	\$6,565,730	\$26,262,920
Marketing and Other	\$131,315	\$131,315	\$131,315	\$131,315	\$525,258
Total	\$8,250,848	\$8,255,223	\$8,259,707	\$8,264,304	\$33,030,082

Cost-Effectiveness Results

	Test Results
TRC	0.78
UCT	0.91
CCE	\$0.309

Program Name	Affordable Housing New Construction
Program Description	This program element will provide technical assistance and incentive funding for the energy-efficient construction of affordable housing: both new buildings and major renovations. The offering is designed to promote the benefits of lower utility bills, and improved comfort for income-eligible households, as a result of living in energy-efficient buildings. Another integral part of the program is educating those involved in the development of affordable housing on the various cost effective energy-efficient building practices that can be included in building construction.
Program Duration	January 2018 through December 2021
Collaboration	This program will be operated jointly with participating natural gas utilities.
Delivery Strategy	<p>Participation will be driven primarily through direct outreach by the implementation contractor or by ComEd. The program will be delivered through the implementation contractor, which will provide technical assistance, whole building modeling, outreach, and education. The following expectations and assumptions have been used for planning purposes, with actual incentive levels to be determined during the detailed implementation plan development.</p> <p>Technical Assistance. Technical assistance includes access to technical experts to identify ways to save energy and lower operating expenses, energy modeling or whole building energy simulations to optimize the building design for energy performance, and life-cycle costing to identify cost-effectiveness of the project and maximize savings.</p> <p>Implementation Incentives. The Affordable Housing New Construction Program element will offer implementation incentives to affordable housing owners and developers to help overcome first-cost barriers.</p>
Target Market	The program will serve both single-family and multi-family affordable housing owners and developers and will be available for the energy efficient construction of housing units for households with incomes at or below 80% of the Area Median Income.

Program Name	Affordable Housing New Construction																																			
Marketing Strategy	Marketing will be coordinated and aligned to provide a single message to targeted owners and developers. This will build on existing marketing channels already in use by nonprofit entities and government agencies that have existing relationships with, or experience serving, affordable housing owners and developers.																																			
Eligible Measures	<p>Energy savings and incentives will be based on whole-building energy simulation and achievement of whole-building performance targets above minimally code-compliant baseline conditions (latest adopted version of the Illinois Energy Conservation Code). Energy-efficient building practices emphasized under the program include:</p> <ul style="list-style-type: none"> • High Insulation Levels • Air Sealing • Controlled Ventilation • High Efficiency HVAC Systems 																																			
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 1066 1406 1444"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Major renovation (units ≤ 80% AMI)</td> <td>217</td> <td>239</td> <td>263</td> <td>290</td> <td>1,009</td> </tr> <tr> <td>New Multi-Family (units ≤ 80% AMI)</td> <td>686</td> <td>755</td> <td>831</td> <td>915</td> <td>3,187</td> </tr> <tr> <td>Single-Family (units ≤ 80% AMI)</td> <td>109</td> <td>120</td> <td>132</td> <td>146</td> <td>507</td> </tr> <tr> <td>Total units (≤ 80% AMI)</td> <td>1,012</td> <td>1,114</td> <td>1,226</td> <td>1,351</td> <td>4,703</td> </tr> </tbody> </table>							2018	2019	2020	2021	Total	Major renovation (units ≤ 80% AMI)	217	239	263	290	1,009	New Multi-Family (units ≤ 80% AMI)	686	755	831	915	3,187	Single-Family (units ≤ 80% AMI)	109	120	132	146	507	Total units (≤ 80% AMI)	1,012	1,114	1,226	1,351	4,703
	2018	2019	2020	2021	Total																															
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Total units (≤ 80% AMI)	1,012	1,114	1,226	1,351	4,703																															

Program Name

Affordable Housing New Construction

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	1,879	3,948	6,225	8,734	8,734
Net MWh	1,222	2,566	4,046	5,677	5,677
First Year Annual Savings					
Gross MWh	1,879	2,069	2,277	2,509	8,734
Net MWh	1,222	1,345	1,480	1,631	5,677
Gross MW	1	1	1	1	3
Net MW	0	0	0	0	2

Program Budget

	2018	2019	2020	2021	Total
Administration	\$43,750	\$44,844	\$45,965	\$47,114	\$181,673
Implementation	\$271,250	\$301,656	\$335,185	\$372,151	\$1,280,242
Incentives	\$2,284,348	\$2,514,645	\$2,767,415	\$3,049,960	\$10,616,368
Marketing and Other	\$63,000	\$69,300	\$76,230	\$83,853	\$292,383
Total	\$2,662,348	\$2,930,445	\$3,224,795	\$3,553,078	\$12,370,666

Cost-Effectiveness Results

	Test Results
TRC	1.63
UCT	1.14
CCE	\$0.114

Program Name	Food Bank LED Distribution Program
Program Description	The Food Bank LED Distribution Program involves a partnership between ComEd and CLEAResult to provide ENERGY STAR®-certified LEDs to food banks affiliated with Feeding America. The food banks then use their network of local food pantries to distribute the bulbs to ComEd customers. The food banks primarily serve as a distribution center by receiving the LEDs from CLEAResult, providing temporary storage, and distributing the allocated LED quantities to the targeted food pantries.
Program Duration	January 2018 to December 2018 (1 year)
Collaboration	ComEd, Greater Chicago Food Bank, Northern Illinois Food Bank, Riverbend Food Bank, and CLEAResult.
Delivery Strategy	In the first step of market analysis, CLEAResult will identify the food bank base that could realistically participate. During the program planning stage, we will work with each targeted food bank and ComEd to formulate the exact number of households served by each pantry that will be eligible for participation. ENERGY STAR® certified LEDs will then be shipped to the three participating Food Banks, which in turn distribute the bulbs, along with an educational light bulb handout sheet to the participating food pantries (agencies). The agencies will then distribute the bulbs directly to ComEd customers. CLEAResult will offer four LEDs per household.
Target Market	This program is designed to target 300,000 income-eligible households / food-insecure families in the ComEd service territory during the 1-year period. CLEAResult will work with each targeted food bank and ComEd to formulate the exact number of households served by each pantry that will be eligible for participation. As a condition of participating in the program, food banks (on behalf of participating pantries) will agree to fairly distribute LEDs (four bulbs per household) only to ComEd customers as identified in the approved agency/pantry lists. Food pantries will also be made aware (either through direct conversation with CLEAResult staff or instructions from food banks) that all bulbs received must be allocated to ComEd customers in as timely a manner as possible – to ensure accurate reporting and associated energy savings. CLEAResult has a high confidence level that each shipment of bulbs will

Program Name	Food Bank LED Distribution Program												
	be distributed within a 60-day timeframe. All such targeted income-eligible customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.												
Marketing Strategy	<p>CLEAResult will provide an educational handout to every bulb recipient that will contain key messaging for the program, including ENERGY STAR information and where and how to use the bulbs. Because CLEAResult has designed this program to reach an underserved demographic, education is key to measure uptake and persistence. The handout is designed to motivate customers to install the bulbs and maximize their energy savings using value propositions such as:</p> <ul style="list-style-type: none"> • By changing one bulb, you can save up to \$55 in electricity costs over the bulb’s lifetime; and • ENERGY STAR-certified lighting products can use up to 80% less energy than incandescent bulbs; and • Last at least 15 times longer than an incandescent light bulb 												
Eligible Measures	The eligible measure for this program will be ENERGY STAR-certified 10W A-Line LED screw based omnidirectional bulbs (4 per household).												
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="407 1276 1403 1415"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Households</td> <td>1,003,800</td> <td>210,000</td> <td>180,000</td> <td>-</td> <td>1,393,800</td> </tr> </tbody> </table>		2018	2019	2020	2021	Total	Total Households	1,003,800	210,000	180,000	-	1,393,800
	2018	2019	2020	2021	Total								
Total Households	1,003,800	210,000	180,000	-	1,393,800								

Program Name

Food Bank LED Distribution Program

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	15,241	18,222	20,778	7,123	7,123
Net MWh	15,241	18,222	20,778	7,123	7,123
First Year Annual Savings					
Gross MWh	15,241	2,981	2,555	-	20,778
Net MWh	15,241	2,981	2,555	-	20,778
Gross MW	8	2	1	-	12
Net MW	8	2	1	-	12

Program Budget

	2018	2019	2020	2021	Total
Administration	\$0	\$0	\$0	\$0	\$0
Implementation	\$335,925	\$0	\$0	\$0	\$335,925
Incentives	\$2,845,000	\$0	\$0	\$0	\$2,845,000
Marketing and Other	\$33,553	\$0	\$0	\$0	\$33,553
Total	\$3,214,478	\$0	\$0	\$0	\$3,214,478

Cost-Effectiveness Results

	Test Results
TRC	0.56
UCT	1.27
CCE	\$0.035

Program Name	UIC ERC – Low Income Kit Program
Program Description	The Low Income Kit Program provides income-eligible customers with a kit containing energy-saving devices and educational information on additional energy-saving actions they can take to reduce their energy bills.
Program Duration	January 2018 – December 2018 (1 year)
Collaboration	None
Delivery Strategy	The Program delivery mechanism is centered on the hand-delivery of the kits by 15 Community Action Agencies located in the ComEd territory. The program will proportionally distribute the kits to each Community Action Agency based on the population served (number of households that seek assistance every year). Utilizing an already active network of Community Action Agencies to reach a wide audience of customers is a more time efficient, cost-effective strategy than direct mailing or doorknob hanging. The main objective of this program is to expand the reach of energy efficiency services to additional extremely low to very low income customers.
Target Market	The target population is income-eligible customers living in single-family and small multi-family housing that are currently underserved by existing energy efficiency programs. More specifically, the target market is extremely low income to very low income ComEd customers living at or below 150% of the federal poverty level. In Illinois, approximately 1,096,000 households have incomes below 150% of the poverty level (the number that is under 80% of area median income is slightly larger). Around 43% live in single-family housing and another 21% in 2-4 unit housing. In ComEd’s territory, 490,000 low-income households live in such housing units. Those households are the target for this program. This program is expected to reach 150,000 households in this target market during the program. All such targeted customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.

Program Name	UIC ERC – Low Income Kit Program																	
Marketing Strategy	<p>The program will be advertised via direct marketing by the Community Action Agencies. During the customers' application for energy assistance programs and relief from the Low Income Home Energy Assistance Program (LIHEAP), the Community Action Agencies will communicate the availability of the program to eligible customers. Messaging and communication scripts will be developed by the Energy Resource Center (ERC) in collaboration with ComEd along with the help of specialized agencies hired as subcontractors. Community Action Agencies' staff that will come in contact with customers will be trained on the messaging, focusing on the benefits of the energy efficiency measures contained in the kits. Program participation will be closely monitored and tracked to allow continuous assessment and necessary adjustments. Additionally, a website/landing page will be used to provide educational and installation materials.</p>																	
Eligible Measures	<p>Each energy kit will include a Tier 1 Advance Power Strip, four (4) 9W or lower LEDs, two (2) 16W LEDs, an LED night light, and for households with electric hot water, low flow faucet aerators for the kitchen and bathroom and a low flow showerhead. LEDs, LED night lights, low-flow aerators and low flow showerheads have all been proven energy savers. The Tier 1 Advance Power Strip is a newer technology that shuts off power when household electronics are no longer in use, reducing the "vampire" current. It has the added benefit of electrical surge protection.</p>																	
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 1331 1406 1476"> <thead> <tr> <th data-bbox="370 1331 607 1392"></th> <th data-bbox="607 1331 760 1392">2018</th> <th data-bbox="760 1331 922 1392">2019</th> <th data-bbox="922 1331 1084 1392">2020</th> <th data-bbox="1084 1331 1230 1392">2021</th> <th data-bbox="1230 1331 1406 1392">Total</th> </tr> </thead> <tbody> <tr> <td data-bbox="370 1392 607 1476">Total Kits</td> <td data-bbox="607 1392 760 1476">35,000</td> <td data-bbox="760 1392 922 1476">-</td> <td data-bbox="922 1392 1084 1476">-</td> <td data-bbox="1084 1392 1230 1476">-</td> <td data-bbox="1230 1392 1406 1476">35,000</td> </tr> </tbody> </table>							2018	2019	2020	2021	Total	Total Kits	35,000	-	-	-	35,000
	2018	2019	2020	2021	Total													
Total Kits	35,000	-	-	-	35,000													

Program Name

UIC ERC – Low Income Kit Program

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	9,012	10,098	11,028	7,076	7,076
Net MWh	9,012	10,098	11,028	7,076	7,076
First Year Annual Savings					
Gross MWh	9,012	1,085	930	-	11,028
Net MWh	9,012	1,085	930	-	11,028
Gross MW	4	1	1	-	5
Net MW	4	1	1	-	5

Program Budget

	2018	2019	2020	2021	Total
Administration	\$0	\$0	\$0	\$0	\$0
Implementation	\$577,343	\$0	\$0	\$0	\$577,343
Incentives	\$1,649,550	\$0	\$0	\$0	\$1,649,550
Marketing and Other	\$927,351	\$0	\$0	\$0	\$927,351
Total	\$3,154,244	\$0	\$0	\$0	\$3,154,244

Cost-Effectiveness Results

	Test Results
TRC	1.24
UCT	1.24
CCE	\$0.047

Business Program Elements

For C&I customers and public sector customers, we propose one set of programs that will serve both of these customer segments, which are essentially our business customers. Our Plan will offer – under the “Business” umbrella – 13 program elements that target these customers. We estimate these segments total approximately 400,000 customers and approximately 65% of overall kWh usage in the ComEd service territory.

The Business program umbrella consists of 13 programs, which are projected to provide CPAS of 959,656 MWh, 1,909,852 MWh, 2,821,431MWh, and 3,628,824 MWh for 2018, 2019, 2020, and 2021, respectively. These program elements are expected to attain 55% of our total CPAS goal in 2018, 57% in 2019, 57% in 2020, and 57% in 2021.

The public sector offerings are new to our portfolio in Plan 5. As explained above, these program offerings have historically been implemented and managed by DCEO in previous plans under Section 8-103. We researched how DCEO administered programs for this customer segment and how such programs have been administered across the country. Of note, we found that Illinois was the only state that was breaking out the public sector as its own customer segment. Across the country, we found the public sector customers were treated the same as business customers, including with respect to incentive levels. As such, we intend to implement these program elements with the same incentive levels for both private and public customers.

These program elements will provide, to the extent practical, cooperative offerings with the natural gas program offerings of Nicor Gas and Peoples Gas / North Shore Gas.

Business Customer Outreach and Customer Acquisition

The Outreach and Acquisition Strategy organizes the programs into five program elements that include Incentives, Optimization, Direct Install, Midstream, and New Construction. This organization simplifies portfolio management by grouping programs with similar characteristics. A Customer Relationship Management (“CRM”) system was also developed via a network of databases that enables tracking and management of customer acquisition activities, including outreach, trade ally and service provider training, marketing, facility opportunity assessments, and events. By having all program activity captured within this database system, program implementers and ComEd program managers have the ability to communicate with customers with minimum redundancy, determine the status of customer program participation, assess customer need, and share customer information across all program elements.

Customer acquisition begins with customer outreach. Various outreach strategies increase program awareness and identify trade ally training opportunities, leading to higher performing trade allies, service providers, and distributors. This, in turn, increases the identification of projects that feed the program sales channel and increases customer participation. Targeted email campaigns are used to communicate program updates and other information to small business trade allies, architectural and engineering firms, service providers, and distributors, as well as customers. Program events are also tracked and customer attendee information is captured. Targeted municipal Chamber of Commerce outreach activities are also tracked and shared across programs.

In addition to outreach efforts, the Facility Assessments program element provides a source for customer leads and increases customer awareness. Project opportunities identified by these visits to customers' facilities are captured within ComEd's CRM system for follow-up by outreach staff. All of the collected data becomes available to program managers and implementers for use in quantifying customer opportunities and determining the appropriate program for customer engagement.

This strategy provides program managers and implementers with the ability to increase customer awareness of, and participation in, the programs and encourages customers to regard ComEd as a trusted energy advisor.

Public Sector Spending Requirement

The following table demonstrates our commitment to achieve the 10% spending requirement on the public sector customer segment. With an overall portfolio budget of \$351 million annually, the public sector spending requirement is \$35.1 million per year. Table 14 illustrates the projected expenditure for each program element at the C&I and public sector level. With the addition of the portfolio level costs allocated to the projected public sector spend at the program element level, the table shows that we expect to exceed the \$35.1 million target each of the four calendar years.

TABLE 14 – BUSINESS BUDGET BREAKOUT BY C&I AND PUBLIC SECTOR

Programs	CY 2018 Cost (\$)	CY 2019 Cost (\$)	CY 2020 Cost (\$)	CY 2021 Cost (\$)	4 Year Plan Cost(\$)
Business - EE Programs					
C&I SECTOR					
Incentives	\$45,234,806	\$45,040,740	\$41,831,399	\$43,868,449	\$175,975,393
Small Business	\$44,404,151	\$42,313,182	\$43,516,158	\$44,369,312	\$174,602,803
Business Instant Discounts	\$15,389,943	\$15,044,266	\$13,182,061	\$11,999,763	\$55,616,033
AC Tuneup	\$4,533,654	\$4,746,545	\$4,984,085	\$5,237,805	\$19,502,089
Non-Res New Construction	\$9,127,957	\$9,357,049	\$9,722,720	\$9,931,025	\$38,138,750
Industrial Systems	\$5,420,595	\$5,627,281	\$5,845,529	\$5,997,981	\$22,891,386
RetroCommissioning	\$6,165,318	\$6,350,683	\$6,479,061	\$6,546,249	\$25,541,311
Strategic Energy Management	\$1,751,200	\$1,754,700	\$1,758,287	\$1,761,965	\$7,026,152
LED Streetlighting	\$9,908,615	\$8,675,068	\$9,909,235	\$9,932,901	\$38,425,819
Facility Assessments	\$1,520,000	\$1,539,250	\$1,558,980	\$1,579,206	\$6,197,436
Rural Small Business Kits	\$867,198	\$0	\$0	\$0	\$867,198
Power TakeOff	\$1,125,757	\$0	\$0	\$0	\$1,125,757
C&I Sector Outreach	\$1,650,000	\$1,650,000	\$1,650,000	\$1,650,000	\$6,600,000
C&I SECTOR SUBTOTAL	\$147,099,194	\$142,098,763	\$140,437,515	\$142,874,656	\$572,510,128
PUBLIC SECTOR					
Incentives	\$11,671,213	\$11,857,043	\$11,220,322	\$10,602,011	\$45,350,589
Small Business	\$1,936,773	\$1,692,527	\$1,740,646	\$2,034,772	\$7,404,719
Business Instant Discounts	\$955,073	\$921,998	\$851,854	\$744,812	\$3,473,737
AC Tuneup	\$181,346	\$189,862	\$199,363	\$209,512	\$780,084
Non-Res New Construction	\$548,781	\$702,283	\$875,180	\$1,041,776	\$3,168,021
Industrial Systems	\$62,949	\$125,754	\$125,677	\$125,670	\$440,051
RetroCommissioning	\$1,940,324	\$1,941,252	\$1,940,881	\$1,942,590	\$7,765,047
Strategic Energy Management	\$437,800	\$438,675	\$439,572	\$440,491	\$1,756,538
LED Streetlighting	\$14,304,247	\$14,312,545	\$15,312,726	\$9,586,291	\$53,515,808
Facility Assessments	\$367,500	\$372,313	\$377,245	\$382,302	\$1,499,359
Public Housing Retrofits	\$2,190,127	\$2,194,502	\$2,198,986	\$2,203,583	\$8,787,198
Public Sector Outreach	\$3,000,000	\$1,500,000	\$1,500,000	\$1,500,000	\$7,500,000
PUBLIC SECTOR SUBTOTAL	\$37,596,134	\$36,248,754	\$36,782,452	\$30,813,811	\$141,441,151
BUSINESS PROGRAM PORTFOLIO COSTS					
Business C&I Sector	\$20,417,846	\$19,067,242	\$19,007,106	\$20,368,298	\$78,860,493
Business Public Sector	\$5,290,138	\$4,863,968	\$4,978,214	\$4,392,836	\$19,525,155
PORTFOLIO-LEVEL COSTS TOTAL	\$25,707,985	\$23,931,210	\$23,985,320	\$24,761,134	\$98,385,648
C&I SECTOR TOTAL	\$167,517,040	\$161,166,005	\$159,444,621	\$163,242,954	\$651,370,620
PUBLIC SECTOR TOTAL	\$42,886,272	\$41,112,721	\$41,760,666	\$35,206,647	\$160,966,307
BUSINESS SECTOR TOTAL	\$210,403,312	\$202,278,726	\$201,205,287	\$198,449,601	\$812,336,927

The following pages provide detailed descriptions of the Business Umbrella program elements.

Program Name	Business Incentives
Program Description	<p>The Business Incentives program provides monetary incentives to customers that implement qualified energy efficiency improvements in their facilities. The incentive structure will be based either on a “standard,” per-unit basis, as with most lighting measures, or “custom,” with the incentive based on the calculated annual energy savings for the customer.</p> <p>Within the standard portion of the program, discrete retrofit opportunities are targeted, such as lighting and HVAC systems. The standard portion of the program also will target new system installation opportunities (e.g., lighting systems) by offering incentives that “bundle” equipment and controls technologies. Streamlined incentive application and verification and quality control processes will be employed to facilitate ease of participation and minimize the time required for incentive payment. Most standard measures have savings algorithms and assumptions based on the TRM.</p> <p>The custom portion of the program will identify and implement site-specific and unique cost-effective energy efficiency opportunities that are not available via the standard portion of the program. Many C&I projects involve multiple measures with interactive effects, process improvements, or complex measures for which deemed savings or simple saving algorithms are not appropriate. Customized incentives based on calculated savings for specific customer projects will be offered.</p> <p>Technical assistance and funding (pre-approved study cost) for a limited number of feasibility and engineering studies will be provided to assist in the evaluation and implementation of energy efficiency projects. These Technical Assistant Services (TAS) will serve to help customers make decisions about implementing energy efficiency measures by providing key information, including project feasibility, pre- and post-project energy usage, potential energy cost savings, and implementation costs. The assessment types available are:</p> <ul style="list-style-type: none"> • Combined Heat and Power (CHP) • Data Centers

Program Name	Business Incentives
	<p>The assessments will include:</p> <ul style="list-style-type: none"> • Analysis of operating parameters and energy use for each system in the study • A written report that identifies opportunities for operational improvements, with associated project costs and energy savings • A list of system recommendations, paybacks, incentive opportunities and estimated savings on energy costs • Low-cost and no-cost opportunities to improve energy efficiency relationships with trade allies (e.g., equipment vendors, installation contractors) are a key strategy for promoting the standard portion of the Business Incentives program while key segments of the trade ally market (e.g., specialized engineering firms, energy service providers) will be critical for promoting the custom incentives to customers. Business incentives marketing and outreach also will target high-potential customer segments, such as hospitals, office buildings, warehouses and colleges/universities. Additional leads are expected from Facility Assessments (FAs).
Program Duration	January 2018 through December 2021
Collaboration	<p>This program offers primarily electric-only energy savings, so it will not be offered as a coordinated program. However, measures that are incentivized by both ComEd and one or more of the gas companies are flagged as such in our application documents (e.g., “Your gas company may offer an additional prescriptive or custom rebate for this measure...”). ComEd also will continue to leverage opportunities from consumer education on this program and other joint gas program customer outreach and engagement activities.</p>
Delivery Strategy	<p>ComEd will utilize a variety of implementation contractors to fulfill this program. As part of its overarching solution provision strategy, ComEd will utilize a variety of specialized implementers to support the wide variety of customer segments, including Commercial Real Estate, Hospitality, Health Care, Industrial, Data Centers, and others. ComEd will also maintain a primary administrative implementer to manage back-office operations, trade ally management and general outreach.</p> <p>For the Business Incentives program, ComEd account managers will</p>

Program Name	Business Incentives
	<p>help to market the program and identify potential candidate customers for participation. Account managers also will encourage their customers to request an FA (an on-site facility assessment conducted by an engineer to identify energy-efficiency opportunities eligible for incentives).</p> <ul style="list-style-type: none"> • ComEd account managers and direct outreach by ComEd and implementation contractors will be the primary drivers for the custom portion of the program. Energy studies will be performed by third-party engineering consultants. Efficiency measure implementation and installation via either program will be the responsibility of the customer and trade ally. Key elements of the Business Incentives program implementation strategy include: Trade ally recruitment and training: Trade allies and key segments such as specialized engineering firms and energy service providers will be the key delivery mechanism for promoting participation and available incentives to their customers. Trade allies will be recruited to participate in training sessions to inform them about program incentives, participation processes, and requirements. Trade allies actively participating in this program and other program offerings will receive regular communications about program activities and changes to ensure they are informed and engaged participants. • Customer recruitment: Customers will be recruited primarily through marketing and direct outreach activities. Special outreach and marketing efforts will be made to recruit high-potential customer segments, such as hospitals, office buildings, warehouses and colleges/universities. Account manager referrals and trade allies will be key to customer recruitment, especially for our larger customers. To ensure that Business customers perceive our energy efficiency programs as a seamless set of offerings, cross-referrals from other programs will also be provided, where appropriate. • Facility Assessments: The program implementation contractor will follow up with customers who receive an FA to encourage them to implement recommendations made in the FA report and answer any questions they have about available incentives. • Technical assistance: The program implementation contractor will provide guidance regarding program offerings and participation processes to customers and trade allies as needed to minimize confusion and barriers to participation. Engineering support will also be offered to identify and assess the cost-effectiveness of unique energy

Program Name	Business Incentives
	<p>savings project (e.g., data centers and CHP) not covered by the Business Incentives.</p> <ul style="list-style-type: none"> • Application submittal: Customers will submit incentive applications and required documentation after installation of qualifying energy efficiency measures has been completed. • Quality assurance/Quality control review: Incentive applications will be subject to a quality assurance / quality control review by technical staff to ensure all required forms and documentation have been submitted, and that the calculation of incentive totals is correct. • Project verification: ComEd will reserve the right to site-verify installations prior to approval and incentive payment. • Incentive payment: To minimize barriers to participation within the Business Incentives program, ComEd will seek to expedite incentive payments.
Target Market	<p>This program is designed for Business customers seeking to improve the efficiency of existing facilities. All targeted customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>Trade allies, service providers, and ComEd account managers are the primary conduits for this program and ComEd will leverage its direct relationships with its Business customers to market this program. The following are marketing strategies that will help meet program goals:</p> <ul style="list-style-type: none"> • Segment incentive offerings (and associated marketing materials) by market sector to increase relevancy to trade allies and target audiences. Example segment offerings include hospitals, universities, grocery stores, car dealerships and industrial customers. • Segment customers by energy intensity usage and target marketing through industry associations, trade shows, direct mail, and email marketing campaigns. • Educate and leverage existing resources (trade allies, account managers, external affairs managers, call center) to their greatest potential to achieve broad-based awareness at the lowest possible cost. • Leverage, grow and diversify trade ally relationships to extend reach and cultivate increased awareness among different customer

Program Name	Business Incentives																								
	<p>segments.</p> <p>Tactics include: direct relationship marketing via personal sales visits to large Business accounts and trade allies. Other tactics include targeted email communications, direct mail, newsletters, and customer events.</p> <p><u>Key Messages</u></p> <p>When communicating with customers, ComEd uses a few overarching key messages, including</p> <ul style="list-style-type: none"> • <i>Energy efficiency reduces operating costs and improves the bottom line</i> • <i>Rebates and incentives shorten payback periods for energy-efficient equipment and systems</i> <p><i>Investing in energy savings is a smart decision</i></p> <p>When communicating with trade allies, ComEd uses overarching key messages, including:</p> <ul style="list-style-type: none"> • <i>Promoting energy efficiency can help you grow your business</i> 																								
Eligible Measures	<p>Business Incentives program measures will include energy-efficient equipment, which has broad application in nonresidential sectors, such as LED, T-8 and T-5 lighting and controls, building automation systems, air- and water-cooled chillers and variable speed drives, as well as equipment with niche or targeted market applications, such as laboratory, CHP, farm and commercial food service equipment, and grocery refrigeration measures. Process efficiency improvements, system upgrades, and those measures not covered by the standard portion of the Business Incentives program are also included.</p>																								
Program Targets	<p>Participation Levels</p> <table border="1"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Measures</td> <td>104,291,123</td> <td>99,628,242</td> <td>89,220,477</td> <td>91,331,888</td> <td>384,471,730</td> </tr> <tr> <td>Private Sector Measures</td> <td>80,638,074</td> <td>77,712,716</td> <td>71,839,368</td> <td>75,325,197</td> <td>305,515,355</td> </tr> <tr> <td>Public Sector Measures</td> <td>23,653,049</td> <td>21,915,526</td> <td>17,381,109</td> <td>16,006,691</td> <td>78,956,375</td> </tr> </tbody> </table>		2018	2019	2020	2021	Total	Total Measures	104,291,123	99,628,242	89,220,477	91,331,888	384,471,730	Private Sector Measures	80,638,074	77,712,716	71,839,368	75,325,197	305,515,355	Public Sector Measures	23,653,049	21,915,526	17,381,109	16,006,691	78,956,375
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Program Name

Business Incentives

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	456,007	917,241	1,347,805	1,787,968	1,787,968
Net MWh	313,333	633,334	933,766	1,240,731	1,240,731
First Year Annual Savings					
Gross MWh	456,007	461,235	431,181	440,771	1,789,194
Net MWh	313,333	320,001	300,865	307,391	1,241,589
Gross MW	74	74	69	70	287
Net MW	52	52	48	49	201
Private Sector MWh	248,672	251,527	232,742	242,815	975,757
Public Sector MWh	64,661	68,474	68,122	64,576	265,833

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$16,237,272	\$15,937,226	\$14,953,651	\$15,414,765	\$62,542,914
Incentives	\$40,493,746	\$40,781,182	\$37,914,211	\$38,867,239	\$158,056,378
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$56,906,019	\$56,897,783	\$53,051,721	\$54,470,460	\$221,325,983
Private Sector Total	\$45,234,806	\$45,040,740	\$41,831,399	\$43,868,449	\$175,975,393
Public Sector Total	\$11,671,213	\$11,857,043	\$11,220,322	\$10,602,011	\$45,350,589

Program Name	Business Incentives	
	Cost-Effectiveness Results	
		Test Results
	TRC	2.31
	UCT	6.34
CCE	\$0.012	

Program Name	Small Business Energy Savings
Program Description	<p>Small Business Energy Savings (SBES) will be promoted through multiple channels including trade allies, program outreach staff, and key partners. Trade allies will be the primary means of promoting SBES and obtaining participants. ComEd will support the trade allies by providing formal marketing/outreach guidance, co-branded promotional materials, and training/education on measures, technologies, and program expectations. The trade allies will conduct and collect all customer information via comprehensive energy assessments. Trade allies will submit pre-applications on behalf of customers to reserve funding for projects. After approval, they will complete any direct installs selected by the customer and arrange to install all measures the customer would like to complete. The trade ally will submit the final application on behalf of the customer in order for the customer to obtain instant incentives.</p> <p>Trade allies will be given extensive marketing support along with program and technology training, to ensure a premier customer experience.</p> <p>Additionally trade ally support will include establishing, maintaining, and leveraging relationships with local business groups, media, and government organizations to promote program awareness and drive participation. Joint outreach and marketing initiatives conducted with key partners will be part of a cost-effective means of reaching large numbers of potential SBES participants. These partnerships include ComEd external affairs managers, Chambers of Commerce, small business organizations, and other ComEd energy efficiency program-implementing contractors.</p>
Program Duration	January 2018 through December 2021
Collaboration	<p>This program offers primarily electric-only energy savings, so it is not offered as a coordinated program. However, measures that are incentivized by both ComEd and one or more of the gas companies are flagged as such in our application documents (e.g., “Your gas company may offer an additional prescriptive or custom rebate for this measure...”). We also will continue to leverage opportunities from consumer education on this program and other joint gas program customer outreach and engagement activities, such as the joint smart</p>

Program Name	Small Business Energy Savings
	thermostat incentives.
Delivery Strategy	<p>It is the responsibility of the implementation contractor to recruit select trade allies for installation of direct install and capital-intensive measures. The customer is responsible for providing the balance of installation costs for efficiency measure implementation and installation. Delivery efforts include coordinating with our Business account managers where appropriate, developing a marketing strategy and producing the corresponding materials.</p> <p>Key elements of delivery strategy include:</p> <ul style="list-style-type: none"> • Trade ally recruitment and training: Trade allies will be a key delivery mechanism for the program element as they will be responsible for the customer comprehensive assessment and installation of energy efficient measures. Trade allies will be recruited via mailings, training events, personal visits, and selected via RFP. These selected trade allies will be required to sign an agreement to provide service levels meeting program expectations. During this process, minority- and women-owned business enterprise (“MWBE”) contractors will be targeted to participate in this program. • Customer recruitment: Over the years, the recruitment mechanism of the SBES Program has evolved to come up with the most cost-effective approach to deliver energy efficiency programs to hard-to-reach small business customers. The accepted trade allies serve as the Program’s feet-on-the-street. They are a major source of bringing new small business customers into the Program. Their efforts are complemented by the available marketing material, including co-branded documents. Customers also directly reach out to the SBES Program through the ComEd Call Center. These leads are then distributed to the trade ally network so that a site visit can be conducted, determining opportunities for energy savings. Word-of-mouth and customer referrals are other aspects of the Program. Trade allies occasionally receive referrals directly from past customers and others are referred through a customer satisfaction survey after conclusion of a SBES project. To ensure that Business customers perceive our energy efficiency programs as a seamless set of offerings, cross-referrals from other energy efficiency programs will also be provided where appropriate. • Technical assistance: The implementation contractor will provide guidance regarding program offerings and participation processes to customers and trade allies as needed to minimize confusion and

Program Name	Small Business Energy Savings
	<p>barriers to participation. The trade allies are given frequent trainings to ensure that there is clear communication to the customers regarding the SBES Program. Examples of the trainings provided include: basic trade ally training that gives detailed overview of the Program at the start of the calendar year, on-site trainings, comprehensive measure training, new technology training, and paperwork trainings. Each trade ally is assigned a project coordinator to serve as their go-to person for anything SBES-related. The project coordinators also have weekly check-in phone calls with their trade allies to help maintain that clear line of communication and provide any needed assistance. Additionally, an assessment report will be offered to customers that will include a high-level walk through energy survey at no cost to the customer and will provide a report to the owner, outlining other energy efficiency improvements that could be installed. There may be some measures the trade ally will install immediately during the site survey with the customer's permission and no cost to the customer. These will include low-flow aerators and showerheads, high efficiency pre-rinse spray valves, smart strips, and controls for novelty coolers, beverage machines, and snack machines, where applicable. This will educate the small business customers while providing the benefits of the Program through the no-cost direct install measures. The customer has the option at this point to determine if they would like to go forward with the capital-intensive measures. Otherwise, the customer will just receive the assessment report and no-cost measures.</p> <ul style="list-style-type: none"> • Application submittal: Customers will be asked to complete an incentive application at the time of the site survey and before the start of the installation of qualifying capital-intensive or direct install energy efficiency measures. This application explains Program qualification, gathers pertinent customer information, and details of Program terms and conditions. Trade allies submit the completed application with pre-application package if the customer wants to move forward with a project. • Quality assurance/Quality control review: Incentive applications for all measures will be subject to a review to ensure all required forms and documentation have been submitted and that calculation of incentive totals are correct. • Project verification: We will reserve the right to site-verify installations prior to approval and incentive payment. At least 15% of all projects are inspected to verify baseline equipment and/or energy efficient equipment.

Program Name	Small Business Energy Savings
	<ul style="list-style-type: none"> • Incentive payment: To minimize barriers to participation, we will seek to expedite incentive payments.
Target Market	<p>All targeted customers taking delivery service from ComEd are eligible for the program regardless of their choice of supplier. This program is designed for small business customers. The size of these customers has historically been between 0-100 kW in monthly peak demand. Going forward we will evaluate if we could expand this program to customers with a monthly peak demand of up to 500 kW.</p>
Marketing Strategy	<p>The marketing strategies includes the following:</p> <ul style="list-style-type: none"> • Supplement the direct-install efforts of the implementation contractor by developing trade ally relationships in local communities that can deliver education, training, and energy efficiency technologies to small business customers • Educate and leverage existing resources (e.g., trade allies, ComEd external affairs managers, call center) to their greatest potential to achieve broad-based awareness at the lowest possible cost <p>Materials and tactics for trade ally marketing would include program materials and marketing collateral, sale tools, outreach, and training. Materials and tactics for marketing to customers would include direct mail, telemarketing, outreach events, newsletters, bill inserts, and printed collateral.</p> <p>Key Messages:</p> <ul style="list-style-type: none"> • <i>Simple, easy and energy efficient measures are available to your business through ComEd's Small Business Energy Savings Program.</i> • <i>These energy efficiency technologies can help you lower your energy bill.</i>
Eligible Measures	<p>A special focus will be placed on offering a variety of measures to be more comprehensive for the facility. The measure list for this new program will be determined by the results of the ongoing program. Direct install measures, offered at no cost to the customer, will include aerators, shower heads, pre-rinse spray valves, smart strips and controls for novelty</p>

Program Name	Small Business Energy Savings																													
	coolers, beverage machines, and snack machines. Incented measures though this program can include upgrades to T-8 and T-5 lighting, LED retrofits and fixtures, high bay fluorescents, lighting controls, HVAC system components, electric water heaters, refrigeration system components, commercial kitchen equipment, compressed air system measures, smart thermostats, and building envelope measures.																													
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="397 730 1393 1087"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Measures</td> <td>38,566,274</td> <td>35,484,899</td> <td>35,523,910</td> <td>35,230,242</td> <td>144,805,325</td> </tr> <tr> <td>Private Sector Measures</td> <td>36,954,435</td> <td>34,120,095</td> <td>34,157,605</td> <td>33,649,514</td> <td>138,881,650</td> </tr> <tr> <td>Public Sector Measures</td> <td>1,611,839</td> <td>1,364,804</td> <td>1,366,304</td> <td>1,580,728</td> <td>5,923,675</td> </tr> </tbody> </table>							2018	2019	2020	2021	Total	Total Measures	38,566,274	35,484,899	35,523,910	35,230,242	144,805,325	Private Sector Measures	36,954,435	34,120,095	34,157,605	33,649,514	138,881,650	Public Sector Measures	1,611,839	1,364,804	1,366,304	1,580,728	5,923,675
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Program Name

Small Business Energy Savings

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	189,019	363,391	535,274	711,914	711,914
Net MWh	172,007	330,686	487,099	647,842	647,842
First Year Annual Savings					
Gross MWh	189,019	363,391	535,274	711,914	1,799,598
Net MWh	172,007	330,686	487,099	647,842	1,637,635
Gross MW	189,019	174,374	179,417	184,246	727,055
Net MW	172,007	158,680	163,269	167,664	661,620
Private Sector MWh	25	24	25	26	100
Public Sector MWh	23	21	22	23	91

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$7,366,336	\$6,968,000	\$7,176,000	\$7,384,000	\$28,894,336
Incentives	\$38,799,587	\$36,858,334	\$37,896,945	\$38,831,629	\$152,386,495
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$46,340,924	\$44,005,709	\$45,256,804	\$46,404,085	\$182,007,522
Private Sector Total	\$44,404,151	\$42,313,182	\$43,516,158	\$44,369,312	\$174,602,803
Public Sector Total	\$1,936,773	\$1,692,527	\$1,740,646	\$2,034,772	\$7,404,719

Program Name	Small Business Energy Savings	
	Cost-Effectiveness Results	
		Test Results
	TRC	3.23
	UCT	4.56
CCE	\$0.021	

Program Name	Business Instant Discounts
Program Description	<p>This program is designed to provide an expedited, simple solution for Business customers interested in purchasing efficient lighting technologies in place of standard lighting products that can produce verifiable savings. In addition, the program offers efficient battery chargers for industrial vehicles (e.g., forklifts). ComEd is also reviewing future offerings such as HVAC and motor technologies that could be offered to Business customers expeditiously through this program. There is no application process for the customer to go through to the incentive; rather, the price of the item is reduced at the point of sale. Creating a proactive relationship with participating midstream distributors is essential to the program's success.</p>
Program Duration	January 2018 through December 2021
Collaboration	<p>Because this program offers electric-only energy savings, it will not be offered in coordination with the gas companies. However, ComEd will leverage opportunities for consumer education about this program via other joint gas program customer outreach and engagement activities.</p>
Delivery Strategy	<p>This program will be managed by the ComEd Business Incentives program implementer to take advantage of business synergies. This program is designed to deliver technologies through a midstream model that will employ instant incentives through Business customer lighting, battery chargers, and perhaps in the future, HVAC and motor distribution vendors, to increase the sale of energy efficient alternatives to Business customers. The implementation contractor will work with these distributors and manufacturers to drive volume in the program. The implementer will formulate a quality assurance and control process and track the program savings.</p>
Target Market	<p>This program is designed for Business customers seeking to improve lighting efficiency and install new efficient battery chargers for existing facilities. All Business customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>The marketing strategy will be primarily through the electrical distribution channel as ComEd relies heavily on those businesses to spread the word in the marketplace regarding the business instant discounts. To support those efforts, ComEd will provide the following: an online distributor lookup portal by lamp type; program overview tri-fold for</p>

Program Name	Business Instant Discounts																								
	<p>counter sales areas; program overview guides in three languages for use by distributor salespeople for internal and external use; program guide for distributor management; and broadcast emails to Business customers.</p> <p>Key Message:</p> <ul style="list-style-type: none"> • Energy savings and payback delivered through simple lamp replacement is greater than perceived from simple lamp change out. • Selecting the correct lamp type is essential when pairing energy savings with customer experience. • High-frequency battery chargers offer improved energy efficiency and are smaller and lighter than ferroresonant and silicon controlled rectifier (SCR) chargers. 																								
Eligible Measures	<p>Business Instant Discounts will offer the following measures: standard and specialty LED lamps; tubular LED lamps (TLED); LED fixtures; and reduced wattage linear fluorescent. The Battery Charger Incentives will offer high frequency chargers. Additional measures such as HVAC and motor measures are being considered for the future. Incremental costs will be adjusted and based on implementation experience.</p>																								
Program Targets	<p>Participation Levels</p> <table border="1"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total lamps</td> <td>2,524,489</td> <td>2,190,437</td> <td>2,016,083</td> <td>1,839,092</td> <td>8,570,100</td> </tr> <tr> <td>Private Sector lamps</td> <td>2,342,905</td> <td>2,041,040</td> <td>1,872,739</td> <td>1,710,845</td> <td>7,967,528</td> </tr> <tr> <td>Public Sector lamps</td> <td>181,584</td> <td>149,396</td> <td>143,344</td> <td>128,247</td> <td>181,584</td> </tr> </tbody> </table>		2018	2019	2020	2021	Total	Total lamps	2,524,489	2,190,437	2,016,083	1,839,092	8,570,100	Private Sector lamps	2,342,905	2,041,040	1,872,739	1,710,845	7,967,528	Public Sector lamps	181,584	149,396	143,344	128,247	181,584
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Public Sector lamps	181,584	149,396	143,344	128,247	181,584																				

Program Name

Business Instant Discounts

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	294,397	590,860	859,487	1,074,408	2,819,152
Net MWh	230,514	462,933	673,665	842,435	2,209,548
First Year Annual Savings					
Gross MWh	294,397	296,462	268,627	249,231	1,108,718
Net MWh	230,514	232,419	210,732	195,531	869,196
Gross MW	60	61	55	51	227
Net MW	47	48	43	40	178
Private Sector MWh	217,375	219,310	198,374	184,460	819,518
Public Sector MWh	13,140	13,109	12,358	11,071	49,678

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$2,578,578	\$2,505,726	\$2,236,954	\$2,443,632	\$9,764,889
Incentives	\$12,591,439	\$12,281,163	\$10,613,102	\$9,112,487	\$44,598,191
Marketing and Other	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$4,000,000
Total	\$16,345,016	\$15,966,264	\$14,033,914	\$12,744,575	\$59,089,770
Private Sector Total	\$15,389,943	\$15,044,266	\$13,182,061	\$11,999,763	\$55,616,033
Public Sector Total	\$955,073	\$921,998	\$851,854	\$744,812	\$3,473,737

Program Name	Business Instant Discounts	
	Cost-Effectiveness Results	
		Test Results
	TRC	9.65
	UCT	10.72
CCE	\$0.007	

Program Name	Air Conditioner Tune-up Program
Program Description	The Air Conditioner Tune-up Program (AirCare Plus) delivers HVAC savings to Business customers by focusing on packaged Roof-Top Units (RTU) and split-systems, the majority of which are poorly maintained and operating inefficiently. AirCare Plus brings such units back up to optimal working condition by addressing them as holistic systems, including their economizer, thermostat, refrigerant system, scheduling and drive belts. The program will also identify opportunities for unit replacement, economizer retrofits, and system shell improvements.
Program Duration	January 2018 through December 2021
Collaboration	None
Delivery Strategy	<p>The implementation contractor will launch a comprehensive, formal contractor recruiting program. The team will perform the recruitment carefully and thoughtfully to ensure high-quality contractors participate in the program, to set clear expectations of contractor performance, and to capitalize on opportunities to strengthen contractor and customer relationships when possible.</p> <p>This program will leverage a network of qualified, local contractors, whom will be equipped with a digital fault detection and diagnostic tool and custom application. This tool will serve as the primary data collection and diagnostic tool. Contractors will engage with their customers or with customers referred by a utility representative. The contractor explains the process, presents the AirCare Plus marketing material, and enrolls these customers in the program. Technicians service the roof top units per customer agreements with guidance from the program's custom diagnostic tool. Depending on the unit condition and eligibility, a number of measures will be performed. After the work is completed, the implementation contractor conducts a quality control review of the data, comparing it to targets and past program results. Field inspections are performed based on abnormal data or poor contractor performance.</p>
Target Market	Businesses below 100 kW and up to 10 MW peak demand that operate RTUs or split systems that meet the program's tonnage requirements.

Program Name	Air Conditioner Tune-up Program																													
Marketing Strategy	<p>Marketing and outreach efforts will focus on increasing existing contractor participation, identifying new potential contractors, and enhancing direct-to-customer outreach. Marketing and outreach will:</p> <ul style="list-style-type: none"> • Serve as the educational resource for contractors. Providing tools, resources and information to educate contractors and encourage participation. In addition, case studies will supplement training and key messages to promote the value of the program. • Establish and strengthen the contractor network. Using targeted outreach to expand the existing network in ComEd's service territory and establish new connections in the market. 																													
Eligible Measures	<p>The primary measure in this program is a tune-up of an RTU, including refrigerant charge calibration. Additional program measures will address existing system components through repairs, upgrades, and replacements.</p> <ul style="list-style-type: none"> • Incentives will be set at 75% of incremental measure costs (IMC) • Unit cooling capacity will be 7.5 tons on average • Certain portions of the RTU population will have subsystems appropriate for additional measures, assumed to be at the following percentages: <ul style="list-style-type: none"> ○ Economizers: 75% ○ Thermostats: 100% ○ Belt-driven motors: 80% ○ Refrigerant systems: 100% 																													
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="375 1434 1411 1745"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total projects</td> <td>4,160</td> <td>4,472</td> <td>4,807</td> <td>5,048</td> <td>18,487</td> </tr> <tr> <td>Private Sector projects</td> <td>4,000</td> <td>4,300</td> <td>4,623</td> <td>4,854</td> <td>17,776</td> </tr> <tr> <td>Public Sector projects</td> <td>160</td> <td>172</td> <td>185</td> <td>194</td> <td>711</td> </tr> </tbody> </table>							2018	2019	2020	2021	Total	Total projects	4,160	4,472	4,807	5,048	18,487	Private Sector projects	4,000	4,300	4,623	4,854	17,776	Public Sector projects	160	172	185	194	711
	2018	2019	2020	2021	Total																									
Total projects	4,160	4,472	4,807	5,048	18,487																									
Private Sector projects	4,000	4,300	4,623	4,854	17,776																									
Public Sector projects	160	172	185	194	711																									

Program Name

Air Conditioner Tune-up Program

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	32,167	64,509	94,776	111,238	111,238
Net MWh	28,950	58,058	85,298	100,114	100,114
First Year Annual Savings					
Gross MWh	32,167	32,342	32,970	33,539	131,018
Net MWh	28,950	29,108	29,673	30,185	117,916
Gross MW	5	5	5	5	21
Net MW	5	5	5	5	19
Private Sector MWh	27,837	27,988	28,532	29,024	113,381
Public Sector MWh	1,113	1,120	1,141	1,161	4,535

Program Budget

	2018	2019	2020	2021	Total
Administration	\$35,000	\$35,875	\$36,772	\$37,691	\$145,338
Implementation	\$2,080,000	\$2,184,000	\$2,293,200	\$2,407,860	\$8,965,060
Incentives	\$2,600,000	\$2,716,532	\$2,853,477	\$3,001,766	\$11,171,775
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$4,715,000	\$4,936,407	\$5,183,448	\$5,447,318	\$20,282,173
Private Sector Total	\$4,533,654	\$4,746,545	\$4,984,085	\$5,237,805	\$19,502,089
Public Sector Total	\$181,346	\$189,862	\$199,363	\$209,512	\$780,084

Program Name	Air Conditioner Tune-up Program	
	Cost-Effectiveness Results	
		Test Results
	TRC	2.97
	UCT	2.59
CCE	\$0.042	

Program Name	Non-Residential New Construction
Program Description	<p>This program element will promote energy efficiency through a comprehensive effort to influence building design practices during the design and construction of new buildings, major renovations of existing buildings, and tenant build-outs in the Business customer market. To secure energy efficiency opportunities in new construction projects, it is necessary to overcome barriers such as design community resistance to adopting new ideas, increased first-cost for efficient options, ever-increasing demands for rapid decision making, shortened design completion, and the common practice of designing for worst-case conditions rather than efficiency over the range of expected operating conditions. This program element will work to overcome these barriers through education and outreach to building owners, design professionals, building contractors and other trade allies, as well as by providing technical assistance, support for the Leadership in Energy and Environmental Design (LEED®) rating system, and incentives for efficient designs and measure implementation.</p> <p>A key element for success in a new construction program is securing the involvement of the professional design community early in design. To encourage participation of the design community and to offset the costs of considering multiple design options, the Non-Residential New Construction program element offers technical assistance, including whole building energy modeling and consultation, building owner incentives and design team incentives. This program element also offers in-person educational workshops and live webinars during each Calendar Year. These educational events are designed to share information on innovative technologies and energy efficient building design. Lunch-and-learn events are held each year to introduce the program offering to design firms.</p>
Program Duration	January 2018 through December 2021
Collaboration	There is high potential for New Construction to benefit both gas and electric customers. The level of involvement of the gas utilities in each individual approach to New Construction and the mechanisms used to share program costs will be determined on a year-by-year basis.

Program Name	Non-Residential New Construction
Delivery Strategy	<p>Participation will be driven primarily through direct outreach by the implementation contractor or by ComEd, including referrals from ComEd account managers. The program will be delivered through the implementation contractor, which will provide technical assistance, whole building modeling, outreach, and education. The following expectations and assumptions have been used for planning purposes, with actual incentive levels to be determined during the detailed implementation plan development.</p> <p>Technical Assistance. Technical assistance includes access to technical experts to identify ways to save energy and lower operating expenses, energy modeling or whole building energy simulations to optimize the building design for energy performance, and life-cycle costing to identify cost-effectiveness of the project and maximize savings.</p> <p>Implementation Incentives. The New Construction program element will offer implementation incentives to customers to help overcome first-cost barriers.</p> <p>Design Team Incentives. Design team incentives will be offered to encourage early involvement in the design process and to provide partial compensation for the extra work involved in evaluating multiple efficiency options. Design team incentives are currently set at 10% of the implementation incentive.</p>
Target Market	<p>This program is designed for all Business customers. All targeted customers taking delivery service from ComEd are eligible for the program regardless of their choice of supplier. The program will serve Business customers and multi-family facilities.</p>
Marketing Strategy	<p>The program will be marketed to building owners, design professionals, developers, contractors, and trade allies through outreach and education. The following strategies will help meet program goals:</p> <ul style="list-style-type: none"> • Create long-term demand for high performance Business design and construction practices. • Provide integrated training and education to architects, engineers, designers, and developers to foster a community of advocates who understand the energy and non-energy benefits of high performance

Program Name	Non-Residential New Construction
	<p>building, and who can, in turn, market these benefits to owner-occupied and developer/tenant groups to create “pull.”</p> <ul style="list-style-type: none"> • Leverage relationships and outreach with professional allies in the design and construction communities to create interest and involvement in the incentive at the “new project start-up” phase. • Find prospects in the early design phase of building by utilizing ComEd account managers and existing relationships with professional associations and professional consultant allies. • Find prospects for performance-based procurement where projects set enforceable energy performance requirements in the request for proposal for hiring design teams and contractors by offering higher incentives and engaging with the developer community in outreach. <p>Key Tactics include:</p> <ul style="list-style-type: none"> • Direct outreach and marketing to architects, engineers, design teams, developers • Formal education and training events • Development of partnerships with professional organizations <p>Key messages</p> <ul style="list-style-type: none"> • <i>Planning to design or upgrade your building with energy efficiency measures is easier (and smarter) than you think</i> • <i>Early engagement with the New Construction Service team for technical assistance (before or during design development) will maximize energy savings and incentives</i> • <i>An integrated design approach, incorporating energy efficiency across multiple systems, can reduce first costs as well as maximize energy savings and incentives</i> • <i>Incorporation of energy performance requirements in project procurement is the best way to achieve significant, measurable operational savings</i> • <i>The non-energy benefits of energy efficiency measures are significant and can lead to dividends in employee performance and tenant satisfaction</i> • <i>The New Construction Service incentive can provide you and your design team with technical and financial assistance</i>

Program Name	Non-Residential New Construction				
Eligible Measures	Incentives will be based on whole-building energy simulation and achievement of whole-building performance targets above minimally code-compliant baseline conditions.				
Program Targets	Participation Levels				
	2018	2019	2020	2021	Total
Total projects	21,761,473	22,650,788	23,477,098	24,317,669	92,207,027
Private Sector square footage	20,963,277	21,265,106	21,477,757	21,692,535	85,398,676
Public Sector square footage	798,196	1,385,681	1,999,340	2,625,134	6,808,352
	Annual Savings Targets				
	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	47,688	97,162	148,278	201,063	201,063
Net MWh	28,613	58,297	88,967	120,638	120,638
First Year Annual Savings					
Gross MWh	47,688	49,475	51,116	52,785	201,063
Net MWh	28,613	29,685	30,670	31,671	120,638
Gross MW	7.66	7.94	8.21	8.48	32.28
Net MW	4.59	4.77	4.92	5.09	19.37
Private Sector MWh	27,697	28,096	28,377	28,661	112,831
Public Sector MWh	915	1,589	2,293	3,010	7,807

Program
Name

Non-Residential New Construction

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$1,204,500	\$1,245,750	\$1,287,000	\$1,328,250	\$5,065,500
Incentives	\$7,895,738	\$8,218,957	\$8,698,041	\$9,013,345	\$33,826,081
Marketing and Other	\$401,500	\$415,250	\$429,000	\$442,750	\$1,688,500
Total	\$9,676,738	\$10,059,332	\$10,597,900	\$10,972,801	\$41,306,771
Private Sector Total	\$9,127,957	\$9,357,049	\$9,722,720	\$9,931,025	\$38,138,750
Public Sector Total	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690

Cost-Effectiveness Results

	Test Results
TRC	2.70
UCT	5.07
CCE	\$0.017

Program Name	Industrial Systems
Program Description	<p>This program is designed to assist industrial customers in identifying low-cost and no-cost operational adjustments that will optimize the performance of energy-using systems in existing buildings. There are four optimization categories under this program:</p> <ul style="list-style-type: none"> • Compressed Air • Industrial Refrigeration • Process Cooling • Waste Water Treatment <p>In addition, opportunities for capital investments to improve energy efficiency may be identified during the study. All studies will include:</p> <ul style="list-style-type: none"> • Required pre-approval for participation in the study and eligibility for incentives • Analysis of operating parameters and energy use for each system in the study • A written report that identifies opportunities for operational improvements, with associated project costs and energy savings <p>The studies will be offered based on the customer's existing system characteristics. Each study has requirements that must be met:</p> <p>Compressed Air</p> <ul style="list-style-type: none"> • System must be at least 200 HP in installed capacity. • Customers are to repair at least 50% of the leak volume identified during the assessment and one leak per five horsepower of the compressed air systems. <p>Compressed Air Express</p> <ul style="list-style-type: none"> • System must be at least 50 HP and no greater than 200 HP in installed capacity. • Customers are to repair at least 50% of the leak volume identified during the assessment and one leak per five horsepower of the compressed air systems. <p>Compressed Air Leak Repair</p> <ul style="list-style-type: none"> • System must be at least 50 HP in installed capacity.

Program Name	<p>Industrial Systems</p> <ul style="list-style-type: none"> Customers are to repair at least 50% of the leak volume identified during the assessment and one leak per five horsepower of the compressed air systems. <p>Industrial Refrigeration</p> <ul style="list-style-type: none"> System must be at least 500 HP in installed capacity. Customers are expected to implement at least \$15,000 of the improvements identified during the study. <p>Process Cooling</p> <ul style="list-style-type: none"> System must be at least 500 tons in installed capacity Customers are expected to implement at least \$15,000 of the improvements identified during the study <p>Waste Water Treatment</p> <ul style="list-style-type: none"> Customers are expected to implement at least \$15,000 of the improvements identified during the study. <p>To drive high participation and project completion rates, the following tactics will be used:</p> <ul style="list-style-type: none"> Market the program to customers occupying “good candidate” buildings through focused efforts of our Business account managers, the program’s qualified service providers, and the program implementation team. Implement a detailed application screening process, including benchmarking of energy use to qualify candidates having the highest potential for successful project completion. Ensure that the service provider will be available to support the customer during implementation of recommended measures, including estimating potential costs for each improvement. Generate confidence in the program by operating in a highly controlled manner with significant technical and managerial oversight provided on each project. Promote participation through educational program components emphasizing the value of the program. Help to ensure savings persistence by promoting improved operations and maintenance practices.
Program Duration	January 2018 through December 2021
Collaboration	There is high potential for Industrial Systems to benefit both gas and electric

Program Name	Industrial Systems
	customers. The level of involvement of the gas utilities in each individual approach to Industrial Systems and the mechanisms used to share program costs will be determined on a year-by-year basis.
Delivery Strategy	<p>The implementation contractor will oversee all activities conducted by participating service providers, review submitted program documents, and provide independent evaluation of savings estimates and post-installation verification. Our account managers will help market this program and identify potential customers for participation.</p> <p>Key elements of the Industrial Systems program implementation strategy include:</p> <ul style="list-style-type: none"> • Service Provider (“SP”) recruitment and training: SPs will be selected through competitive RFP processes. Once approved, SPs will be required to participate in training sessions to inform them about program incentives, participation processes, study protocols, and requirements. They will also receive regular communications about program activities and changes to ensure they are informed and engaged participants. • Customer recruitment: Program staff, as well as SPs, will recruit customers. Because the program targets larger customers, referrals by our account managers will be a key step in customer recruitment. To ensure that Business customers perceive ComEd’s energy efficiency programs as a seamless set of offerings, cross-referrals from other programs will also be provided where appropriate. • Technical assistance: The program implementation contractor will provide guidance regarding program offerings and participation processes to customers and SPs as needed to minimize confusion and barriers to participation. • Project verification: All measures implemented by the customer will be verified to confirm expected performance. • Quality assurance and quality control review: Incentive applications will be subject to this review to ensure all required forms and documentation have been submitted and that calculations of incentive totals are correct. • Incentive payment: To minimize barriers to participation, the program will seek to expedite incentive payment.

Program Name	Industrial Systems
Target Market	Industrial Systems customers that have high potential for energy savings in their compressed air, industrial refrigeration, process cooling systems, or waste water treatment are targeted, although all industrial customers will be evaluated for inclusion in the program. All targeted customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.
Marketing Strategy	<p>Industrial System SPs are the primary conduit for this program and will market the program through their direct relationships with industrial customers. They will identify, communicate, and enroll customer participants through their own marketing initiatives, assisted by the efforts of our account managers, which may be supplemented by the program.</p> <p>The following marketing strategies will help meet program goals:</p> <ul style="list-style-type: none"> • Leverage and grow industrial system service provider relationships to achieve aggressive target. • Educate and leverage existing resources (e.g., trade allies and ComEd account managers) to their greatest potential to more effectively and economically reach customer segments. • Segment customers by their building type and industrial segment types and tailor communications and incentive offerings based on this information. • Tactics include co-branded marketing collateral from ComEd (and gas utilities where appropriate), direct mail, newsletters, trade shows, outbound calling campaigns, and email communications to market the program. <p>Key Messages</p> <ul style="list-style-type: none"> • <i>Industrial Systems examines energy use by your building's various systems.</i> • <i>Specialized studies are available for compressed air, industrial refrigeration, and process cooling systems.</i> • <i>These studies help you identify no-cost and low-cost operational improvements that can reduce energy usage and save money, with quick payback on your investment.</i> • <i>Are your industrial systems running optimally?</i>

Program Name	Industrial Systems				
Eligible Measures	Industrial Systems studies will identify low cost and capital measures such as optimizing operating parameters, properly matching equipment to load, and installing controls that improve system efficiency.				
Program Targets	Participation Levels				
	2018	2019	2020	2021	Total
Total Facilities	62	69	74	80	285
Private Sector Facilities	61	67	72	78	278
Public Sector Facilities	1	2	2	2	7
	Annual Savings Targets				
	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	32,414	66,508	99,259	132,470	132,470
Net MWh	25,931	53,206	79,407	105,976	105,976
First Year Annual Savings					
Gross MWh	32,414	34,095	35,584	36,449	138,542
Net MWh	25,931	27,276	28,468	29,160	110,834
Gross MW	4.62	4.86	5.07	5.18	19.74
Net MW	3.70	3.89	4.06	4.15	15.79
Private Sector MWh	25,651	26,716	27,908	28,600	108,874
Public Sector MWh	280	560	560	560	1,960

Program
Name

Industrial Systems

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$1,463,216	\$1,530,771	\$1,579,070	\$1,624,831	\$6,197,888
Incentives	\$3,845,328	\$4,042,890	\$4,208,277	\$4,310,364	\$16,406,859
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$5,483,544	\$5,753,036	\$5,971,206	\$6,123,651	\$23,331,437
Private Sector Total	\$5,420,595	\$5,627,281	\$5,845,529	\$5,997,981	\$22,891,386
Public Sector Total	\$62,949	\$125,754	\$125,677	\$125,670	\$440,051

Cost-Effectiveness Results

	Test Results
TRC	3.31
UCT	4.29
CCE	\$0.017

Program Name	Retro-Commissioning
Program Description	<p>This program is designed to assist C&I customers in identifying low-cost and no-cost operational adjustments that will optimize the performance of energy-using systems in existing buildings. In addition, opportunities for capital investments to improve energy efficiency may be identified during the study. All studies will include:</p> <ul style="list-style-type: none"> • Required pre-approval for participation in the study and eligibility for incentives • Analysis of operating parameters and energy use for each system in the study • A written report that identifies opportunities for operational improvements, with associated project costs and energy savings <p>For large buildings, typically defined as over 500,000 square feet, the cost of a comprehensive Retro-Commissioning (“RCx”) study will be paid by ComEd as an incentive. In exchange, customers sign a Program Agreement committing them to spend a minimum amount (depending on project size) to implement agreed-upon energy-saving operational improvements resulting in a bundled estimated simple payback of 1.5 years or less. Buildings between 150,000 and 500,000 square feet have the option of pursuing an RCxpress study, which is similar to comprehensive RCx but with a shorter project life cycle and smaller minimum commitment.</p> <p>Buildings larger than 150,000 square feet will also have the option of pursuing monitoring-based commissioning (“MBCx”). Under MBCx, a cash incentive will be paid to assist customers with the costs of integrating monitoring software into their existing building automation system. In addition, a performance-based incentive of \$0.07 per kWh will be available for verified savings generated by implementation of improvements identified by ongoing monitoring of building systems. To be eligible for these incentives, customers will be required to sign a contract with an approved service provider committing to at least 12 months of monitoring-based commissioning.</p> <p>For smaller buildings, RCx study costs will be limited to ensuring cost-effective generation of energy savings. The RCx Building Tune-Up offer is designed for these customers, who often face substantial barriers to pursuing energy efficiency. ComEd pays both the cost of the RCx study</p>

Program Name	Retro-Commissioning
	<p>and a \$0.03 per verified kWh incentive intended to cover the costs of implementing operational improvements for participants in the RCx Building Tune-Up option.</p> <p>To drive high participation and project completion rates, the following tactics will be used:</p> <ul style="list-style-type: none"> • Market the program to customers occupying “good candidate” buildings through focused efforts of our C&I Account Managers, the program’s qualified service providers, and the program implementation team. • Implement a detailed application screening process, including benchmarking of energy use to qualify candidates having the highest potential for successful project completion. • Ensure that the service provider will be available to support the customer during implementation of recommended measures, including estimating potential costs for each improvement. • Generate confidence in the program by operating in a highly controlled manner with significant technical and managerial oversight provided on each project. • Engage senior management decision-makers as well as facility operations and maintenance staff through program marketing activities and industry education and outreach, such as Building Operator Certification (“BOC”) training. • Promote participation through educational program components emphasizing the value of the program. • Help to ensure savings persistence by promoting improved operations and maintenance practices.
Program Duration	January 2018 through December 2021
Collaboration	There is high potential for RCx to benefit both gas and electric customers. The level of involvement of the gas utilities in each individual approach to RCx and the mechanisms used to share program costs will be determined on a year-by-year basis.
Delivery Strategy	The implementation contractor will oversee all activities conducted by participating service providers, review submitted program documents, and provide independent evaluation of savings estimates and post-installation verification. Our account managers will help market this program and

Program Name	Retro-Commissioning
	<p>identify potential customers for participation.</p> <p>Key elements of the program implementation strategy include:</p> <ul style="list-style-type: none"> • SP recruitment and training: SPs will be selected through competitive RFP processes. Once approved, SPs will be required to participate in training sessions to inform them about program incentives, participation processes, study protocols and requirements. They will also receive regular communications about program activities and changes to ensure they are informed and engaged participants. • Customer recruitment: Program staff, as well as SPs, will recruit customers. Because the program targets larger customers, referrals by our account managers will be a key step in customer recruitment. To ensure that Business customers perceive our energy efficiency programs as a seamless set of offerings, cross-referrals from other programs will also be provided where appropriate. • Technical assistance: The program implementation contractor will provide guidance regarding program offerings and participation processes to customers and SPs as needed to minimize confusion and barriers to participation. • Pre-screening: To ensure that RCx efforts are focused on high-opportunity buildings, ComEd will promote benchmarking with the EPA's Portfolio Manager rating system and other standard industry benchmarks as a pre-screening mechanism. • Project verification: All measures implemented by the customer will be verified to confirm expected performance. • Quality assurance/Quality control review: Incentive applications will be subject to review to ensure all required forms and documentation have been submitted and that calculation of incentive totals are correct. • Incentive payment: To minimize barriers to participation, the program will seek to expedite incentive payment.
Target Market	<p>This program will be targeted to Business customers. Customers suitable for the "smaller" category will typically have peak demand of 100-400 kW, while larger customers will have peak demand in excess of 400 kW. All targeted customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>

Program Name	Retro-Commissioning
Marketing Strategy	<p>RCx System SPs are the primary conduit for this program and will market the program through their direct relationships with Business customers. They will identify, communicate, and enroll customer participants through their own marketing initiatives, assisted by the efforts of our account managers, which may be supplemented by the program. The following are marketing strategies that will help meet program goals:</p> <ul style="list-style-type: none"> • Leverage, grow and diversify RCx service provider relationships to achieve aggressive target. • Educate and leverage existing resources (e.g., trade allies and ComEd account managers) to their greatest potential to more effectively and economically reach customer segments. • Segment customers by their building type and industrial segment types and tailor communications and incentive offerings based on this information. • Tactics include co-branded marketing collateral from ComEd (and gas utilities where appropriate), direct mail, newsletters, trade shows, outbound calling campaigns, and email communications to market the program. <p>Key Messages</p> <ul style="list-style-type: none"> • <i>Examine energy use by your building's various systems.</i> • <i>These studies help you identify no-cost and low-cost operational improvements that can reduce energy usage and save money, with quick payback on your investment.</i> • <i>Is your building out of shape?</i>
Eligible Measures	<p>RCx will obtain kWh and sometimes therm savings through the identification and implementation of low-cost operational adjustments such as scheduling measures, Variable Air Volume (“VAV”) reset, air and coil balancing, temperature reset, thermostat control, and other strategies that improve the efficiency of existing buildings’ operating systems while also meeting the indoor environmental quality requirements of the building’s occupants.</p>

Program Name	Retro-Commissioning					
Program Targets	Participation Levels					
		2018	2019	2020	2021	Total
	Total Measures	320	319	321	324	1,284
	Private Sector Measures	260	262	266	269	1,057
	Public Sector Measures	60	57	55	55	227
	Annual Savings Targets					
		2018	2019	2020	2021	Total
	Cumulative Persisting Annual Savings					
	Gross MWh	31,626	63,403	95,669	128,225	128,225
	Net MWh	30,044	60,233	90,886	121,814	121,814
	First Year Annual Savings					
	Gross MWh	31,626	31,777	32,266	32,556	128,225
	Net MWh	30,044	30,188	30,653	30,929	121,814
	Gross MW	2.64	2.74	2.76	2.75	10.89
	Net MW	2.51	2.60	2.62	2.61	10.34
Private Sector MWh	24,787	24,922	25,396	25,662	100,768	
Public Sector MWh	5,258	5,266	5,257	5,266	21,046	

Program
Name

Retro-Commissioning

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$2,728,478	\$2,796,759	\$2,842,254	\$2,866,759	\$11,234,250
Incentives	\$5,202,164	\$5,315,800	\$5,393,829	\$5,433,624	\$21,345,417
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$8,105,642	\$8,291,934	\$8,419,942	\$8,488,839	\$33,306,357
Private Sector Total	\$6,165,318	\$6,350,683	\$6,479,061	\$6,546,249	\$25,541,311
Public Sector Total	\$1,940,324	\$1,941,252	\$1,940,881	\$1,942,590	\$7,765,047

Cost-Effectiveness Results

	Test Results
TRC	2.58
UCT	1.48
CCE	\$0.055

Program Name	Strategic Energy Management
Program Description	Strategic Energy Management (SEM) supports organizations to embed energy efficiency into their operations and company culture as well as establish energy policies, improvement targets, and budgets for energy efficiency efforts. SEM represents a resource for new energy savings by capturing and claiming behavior and operational measures along with deepening partner relationships with key customers. The benefits include increased awareness and participation from all organization personnel leading to increased energy savings, particularly from low/no-cost behavioral and operational changes.
Program Duration	January 2018 through December 2021
Collaboration	ComEd is currently working with Nicor Gas, and the intent is to also include Peoples Gas / North Shore Gas to offer this program jointly. There is a high potential for this program to benefit both gas and electric utility customers. The utilities will determine a framework for cost allocation based on savings/benefits to each utility's customers. The framework will be fair and equitable and will increase the cost effectiveness of the overall program for both utilities and their customers.
Delivery Strategy	<p>Participation will be driven primarily through direct outreach by the program administrator and by ComEd, including referrals from ComEd account managers. The program will be delivered through the implementation contractor, which will provide group workshops, technical assistance, energy modeling / tracking, outreach, and education. The following expectations and assumptions have been used for planning purposes, with actual incentive levels to be determined during the detailed implementation plan development.</p> <ul style="list-style-type: none"> • Technical Assistance: The SEM Administrator provides individual coaching to each participant depending on needs, circumstance and savings opportunity. An energy model is developed to calculate and track savings. • Energy Advisor: ComEd will be adding an engineer to be an energy resource for SEM participants. The energy advisor will assist the participants with both low-cost and capital energy projects. Assistance can range from recommendations to project scoping. • Customer Recruitment: The SEM program administrator will coordinate with account representatives and outreach to arrange an

Program Name	Strategic Energy Management
	<p>introductory meeting with target companies. During the meeting, the program benefits and requirements will be explained and the enrollment agreement presented. Customers wishing to enroll in the SEM program sign an enrollment agreement.</p> <ul style="list-style-type: none"> • Incentives: Incentives will be paid out at the end of each 12-month period of SEM participation and will be based on the energy savings.
Target Market	<p>The SEM target is to enroll 10 to 12 customers who use significant quantities of electricity and natural gas as participants in the program. Target prospects will be identified by a list indicating the largest combined electricity and gas industrial energy users within the service areas of ComEd and the gas companies.</p>
Marketing Strategy	<p>Direct outreach will be provided by the program administrator. The program administrator will work with ComEd outreach and account managers to engage customers.</p> <p>Key messages</p> <ul style="list-style-type: none"> • <i>SEM provides tools, coaching and technical resources to support your energy goals.</i> • <i>Our SEM team can help you identify and implement no-cost and low-cost energy savings from operational and behavior changes as well as quick payback capital equipment investment opportunities.</i> • <i>SEM draws on principles of continuous improvement and organizational change, and integrates Lean, Six Sigma and other cost savings and operational excellence initiatives.</i>
Eligible Measures	<p>SEM will obtain kWh savings through the identification and implementation of low-cost operational adjustments such as scheduling measures and other strategies that improve the efficiency of existing systems while also meeting the manufacturing requirements. In addition, SEM will identify measures that qualify for other programs in order produce a more inclusive offering to the customer.</p>

Program Name	Strategic Energy Management					
Program Targets	Participation Levels					
		2018	2019	2020	2021	Total
	Total Facilities	50	50	50	50	200
	Private Sector Facilities	40	40	40	40	160
	Public Sector Facilities	10	10	10	10	40
	Annual Savings Targets					
		2018	2019	2020	2021	Total
	Cumulative Persisting Annual Savings					
	Gross MWh	29,450	58,900	88,350	88,350	88,350
	Net MWh	27,978	55,955	83,933	83,933	83,933
	First Year Annual Savings					
	Gross MWh	29,450	29,450	29,450	29,450	117,800
	Net MWh	27,978	27,978	27,978	27,978	111,910
	Gross MW	4.66	4.66	4.66	4.66	18.65
	Net MW	4.43	4.43	4.43	4.43	17.72
	Private Sector MWh	22,382	22,382	22,382	22,382	89,528
	Public Sector MWh	5,596	5,596	5,596	5,596	22,382

Program
Name

Strategic Energy Management

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$1,425,000	\$1,425,000	\$1,425,000	\$1,425,000	\$5,700,000
Incentives	\$589,000	\$589,000	\$589,000	\$589,000	\$2,356,000
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$2,189,000	\$2,193,375	\$2,197,859	\$2,202,456	\$8,782,690
Private Sector Total	\$1,751,200	\$1,754,700	\$1,758,287	\$1,761,965	\$7,026,152
Public Sector Total	\$437,800	\$438,675	\$439,572	\$440,491	\$1,756,538

Cost-Effectiveness Results

	Test Results
TRC	3.71
UCT	2.71
CCE	\$0.025

Program Name	LED Street Lighting
Program Description	<p>The LED Street Lighting program would target municipalities with municipal and/or ComEd-owned high-intensity discharge (HID) street lights to replace their Mercury Vapor (MV) and High Pressure Sodium (HPS) fixtures with LED fixtures. The program would incent early retirement of HID street lights.</p> <p>There are approximately 600,000 municipal-owned and 150,000 ComEd-owned street light fixtures in the ComEd service territory. Assuming that 85% of these street lights are HID lighting fixtures, that leaves approximately 510,000 municipal and 125,000 ComEd-owned fixtures serving municipal customers. The cost saving analysis for municipal-owned fixtures is the energy and maintenance savings. For ComEd-owned fixtures serving a municipality, the municipalities pay a monthly fee that recovers installed capital cost, maintenance cost, and electricity cost based on a fixture-included street lighting tariff. Municipalities seeking to exchange a ComEd-owned fixture for a more efficient LED fixture prior to the existing fixture's failure would pay a fee (including compensation for ComEd's stranded asset) of approximately \$375 per fixture. Incentives offered under this proposed program would cover this fee, promoting early retirement of the existing HID fixtures for more efficient LED fixtures.</p>
Program Duration	January 2018 through December 2021
Collaboration	This program offers primarily electric-only energy savings, so it is not offered as a coordinated program.
Delivery Strategy	<p>The proposed implementation plan would provide an incentive to replace eligible fixtures. In many municipalities there is a mix of both municipal and ComEd-owned fixtures facilitating the marketing of the incentives. Municipalities would manage the replacement of the fixtures they own and ComEd would manage the replacement of ComEd-owned fixtures.</p>
Target Market	This program would be available to municipal customers who own their municipal street lights as well as those who have street lights supplied by ComEd. There are approximately 600,000 municipal owned and 150,000 ComEd-owned street light fixtures in the ComEd service territory.

Program Name	LED Street Lighting
	Assuming that 85% of these street lights are HID lighting fixtures (approximately 510,000 municipal and 125,000 ComEd-owned and fixtures) would be eligible for conversion to LED.
Marketing Strategy	The program will be marketed to municipalities primarily through outreach by ComEd external affairs personnel.
Eligible Measures	<p>Incentives would be available for the conversion of municipal owned street lights as well as for ComEd-owned HID lighting fixtures. The eligible fixtures under ComEd's fixture included rate include both NEMA (Figure 1) and Cobra Head (Figure 2) fixtures. Incentives would be available for 100, 175, 250, and 400 Watt MV fixtures as well as 70, 100, 150, and 250 Watt HPS fixtures. ComEd will evaluate other fixture included lighting fixtures as LED replacements become available.</p> <p>Figure 1: Existing NEMA and Cobra head</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Existing NEMA head</p> </div> <div style="text-align: center;">  <p>Existing Cobra</p> </div> </div> <p style="text-align: center;">head Figure 2: Example LED Cobra head</p> <div style="text-align: center;">  <p>Proposed</p> </div>

Program Name	LED Street Lighting					
Program Targets	Participation Levels					
		2018	2019	2020	2021	Total
	Total Fixtures	142,975	139,975	151,638	104,771	539,359
	Private Sector Fixtures	24,000	21,000	24,000	24,000	93,000
	Public Sector Fixtures	118,975	118,975	127,638	80,771	446,359
	Annual Savings Targets					
		2018	2019	2020	2021	Total
	Cumulative Persisting Annual Savings					
	Gross MWh	95,020	187,869	287,668	354,132	354,132
	Net MWh	95,020	187,869	287,668	354,132	354,132
	First Year Annual Savings					
	Gross MWh	95,020	93,002	100,104	67,180	355,306
	Net MWh	95,020	93,002	100,104	67,180	355,306
	Gross MW	1.51	1.47	1.49	0.71	5.18
	Net MW	1.51	1.47	1.49	0.71	5.18
	Private Sector MWh	14,927	13,061	14,927	14,927	57,841
	Public Sector MWh	80,093	79,941	85,177	52,254	297,465

Program
Name

LED Street Lighting

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$2,045,308	\$1,940,683	\$2,130,415	\$1,644,793	\$7,761,198
Incentives	\$21,992,555	\$20,867,555	\$22,907,687	\$17,685,944	\$83,453,739
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$24,212,862	\$22,987,612	\$25,221,960	\$19,519,192	\$91,941,627
Private Sector Total	\$9,908,615	\$8,675,068	\$9,909,235	\$9,932,901	\$38,425,819
Public Sector Total	\$14,304,247	\$14,312,545	\$15,312,726	\$9,586,291	\$53,515,808

Cost-Effectiveness Results

	Test Results
TRC	19.31
UCT	2.16
CCE	\$0.020

Program Name	Facility Assessment
Program Description	<p>A Facility Assessment (“FA”) is the first step to engaging a customer on how to become more energy efficient and how to participate in the ComEd energy efficiency programs. The FA increases customer awareness, provides a source of customer leads, and identifies energy saving opportunities. FAs provide a high level assessment to Business customers (with < 10MW peak load) by identifying opportunities to save energy and provide a path to begin participation in the ComEd energy efficiency programs.</p> <p>During the FA, no-cost/low-cost operational measures (opportunities that result in energy savings but do not meet the requirements for an incentive) will also be identified. Operational measures typically require awareness, education, change in the behavior or operation of the facility, and/or are maintenance type improvements.</p> <p>The information obtained in an FA is available to all program managers and implementers in order to quantify customer opportunities, assess, and determine the appropriate program or programs that will satisfy the customer’s needs. Using this information, outreach personnel are able to follow up with customers to assist them with the process. In the case of the operational measures, either outreach personnel or the FA engineer will confirm the implementation of the measure and the realized savings will be attributed to the FA program.</p>
Program Duration	January 2018 through December 2021
Collaboration	This program identifies primarily electric-only energy savings, so it is not offered as a coordinated program. However, it is the intent that measures that save natural gas are flagged and documented as such in our assessment.
Delivery Strategy	ComEd account managers will help market the program and identify potential candidate customers for participation (unmanaged customers can submit a request for an FA through ComEd’s web site or Call Center). Account managers will request an FA on their customer’s behalf and an engineer will conduct the assessment. The engineer will perform the site visit and work with outreach personnel and the account manager to deliver the report to the customer. Operational measures identified during the

Program Name	Facility Assessment
	<p>assessment can either be implemented immediately or at a later date. After the FA is delivered to the customer, outreach will follow up with the customer to assist them with participation in the program.</p> <p>Key elements of the FA implementation strategy include:</p> <ul style="list-style-type: none"> • Customer recruitment: Customers will be recruited primarily through marketing and direct outreach activities. Account manager referrals will be key to customer recruitment, especially for our larger customers. Customers also have an opportunity to request an FA either through ComEd’s web page or Call Center. • Technical assistance: The outreach contractor will provide guidance regarding program offerings and participation processes to customers as needed to minimize confusion and barriers to participation. Engineering support will identify and assess energy savings measures. • Project verification: Outreach personnel follow up with the installation on the operational measures. ComEd will reserve the right to site-verify installations. • Incentive payment: Measures identified by the FA will be paid by the appropriate ComEd energy efficiency program. Implemented operational measures will not receive an incentive but will be tracked as a project and the kWhs counted towards the program goal.
Target Market	<p>This program is designed for Business customers (with > 100kW peak load) seeking to improve the efficiency of existing facilities. All targeted customers taking delivery service from ComEd are eligible for this program regardless of their choice of supplier.</p>
Marketing Strategy	<p>Account managers are the primary conduits for this program and ComEd will leverage the managers’ direct relationships with their commercial and industrial customers to market this program. Unmanaged customers will be targeted through direct outreach campaigns focused on customer type. All Business customers (with > 100kW peak load) can visit ComEd’s web site for information on the FA process as well as examples of case studies and request an FA through the site as well as through</p>

Program Name	Facility Assessment																								
	<p>ComEd’s Call Center.</p> <p><u>Key Messages</u></p> <p>When communicating with customers, ComEd uses a few overarching key messages including:</p> <ul style="list-style-type: none"> • <i>A facility assessment is the first step to your business becoming more energy efficient.</i> • <i>ComEd’s energy efficiency program can help your business find energy saving opportunities throughout your facility</i> 																								
Eligible Measures	<p>Measures will be inclusive of all qualifying measures for all programs. Operational savings do not qualify for an incentive, will be at no-cost/low-cost to customers and may include equipment scheduling, shutdown, behavior modification and/or maintenance type improvements.</p>																								
Program Targets	<p>Participation Levels</p> <table border="1" data-bbox="370 1037 1409 1335"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Assessments</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> <td>2,000</td> </tr> <tr> <td>Private Sector Assessments</td> <td>400</td> <td>400</td> <td>400</td> <td>400</td> <td>1,600</td> </tr> <tr> <td>Public Sector Assessments</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>400</td> </tr> </tbody> </table>		2018	2019	2020	2021	Total	Total Assessments	500	500	500	500	2,000	Private Sector Assessments	400	400	400	400	1,600	Public Sector Assessments	100	100	100	100	400
	2018	2019	2020	2021	Total																				
Total Assessments	500	500	500	500	2,000																				
Private Sector Assessments	400	400	400	400	1,600																				
Public Sector Assessments	100	100	100	100	400																				

Program Name

Facility Assessment

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	2,068	2,068	2,068	2,068	2,068
Net MWh	1,654	1,654	1,654	1,654	1,654
First Year Annual Savings					
Gross MWh	2,068	2,068	2,068	2,068	8,271
Net MWh	1,654	1,654	1,654	1,654	6,617
Gross MW	0.33	0.33	0.33	0.33	1.33
Net MW	0.27	0.27	0.27	0.27	1.06
Private Sector MWh	1,323	1,323	1,323	1,323	5,293
Public Sector MWh	331	331	331	331	1,323

Program Budget

	2018	2019	2020	2021	Total
Administration	\$87,500	\$89,688	\$91,930	\$94,228	\$363,345
Implementation	\$1,800,000	\$1,821,875	\$1,844,295	\$1,867,280	\$7,333,450
Incentives	\$0	\$0	\$0	\$0	\$0
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$1,887,500	\$1,911,563	\$1,936,225	\$1,961,508	\$7,696,795
Private Sector Total	\$1,520,000	\$1,539,250	\$1,558,980	\$1,579,206	\$6,197,436
Public Sector Total	\$367,500	\$372,313	\$377,245	\$382,302	\$1,499,359

Program Name	Facility Assessment								
	Cost-Effectiveness Results								
	<table border="1"><thead><tr><th></th><th>Test Results</th></tr></thead><tbody><tr><td>TRC</td><td>0.06</td></tr><tr><td>UCT</td><td>0.06</td></tr><tr><td>CCE</td><td>\$1.123</td></tr></tbody></table>		Test Results	TRC	0.06	UCT	0.06	CCE	\$1.123
	Test Results								
TRC	0.06								
UCT	0.06								
CCE	\$1.123								

Program Name	Public Housing Retrofits
Program Description	<p>This program element will provide energy efficiency retrofits in Public Housing Authority (PHA) facilities in the ComEd service territory. The program offers energy assessments and incentives to upgrade most inefficient equipment in buildings owned and managed by a PHA, including residential units, and common areas at no cost. For energy efficiency projects requiring funding beyond program incentives, technical assistance will be offered to support implementation and identify financing options. The implementation contractor will assist property owner or manager to enroll the property in ComEd's online portal to continually monitor building performance via Smart Meter data. Participants also will receive educational information about easy, energy-saving actions they can take to reduce their energy bills.</p>
Program Duration	January 2018 through December 2021
Collaboration	This program will be offered jointly with Nicor Gas (through their income-eligible program), and Peoples Gas / North Shore Gas.
Delivery Strategy	<p>The implementation contractor will work with ComEd, the gas utilities, and the PHA outreach team to develop marketing materials, conduct program marketing and outreach activities, recruit and manage a closed network of trade allies for common area work, and provide energy assessments and direct installations for PHA properties. The outreach team will be comprised of one or more organizations who have demonstrated capabilities to serve the target market, with a preference for nonprofit entities and government agencies that have existing relationships with, or experience serving, income-eligible communities in Illinois.</p> <p>Key elements of the Public Housing Retrofits Program implementation strategy include:</p> <ul style="list-style-type: none"> • Targeted Outreach to Property Owners and Managers: Outreach will be directed at buildings owned and managed by a PHA. • Assessment: The implementation contractor will conduct an initial assessment to quantify tenant unit and common area savings opportunities. Opportunities not covered by the Public Housing Energy Savings program will be referred to appropriate

Program Name	Public Housing Retrofits
	<p>electric or gas utility program for follow-up. Energy assessors will also assist property owner or manager to enroll the property in ComEd's online portal to continually monitor building performance via Smart Meter data.</p> <ul style="list-style-type: none"> • Direct installs: The implementation contractor will schedule installation appointments with interested properties. The contractor will install various energy-saving measures, which may include LEDs in tenant units, water-saving devices, programmable thermostats, pipe insulation, and LEDs in common area screw-in fixtures. The contractor will leave behind educational materials in each tenant unit describing the work performed and promoting energy-saving benefits. • Trade ally common area installs: The implementation contractor will recruit and manage a closed network of trade allies that will retrofit common area and exterior areas with energy efficient lighting. Measures available for trade ally install at no cost include: furnaces, water heaters, boiler tune-ups and replacements, ductless heat pumps, air sealing, and air conditioning window units. The program also provides incentives for attic and wall insulation. <p>All installation work must meet rigid performance standards established by ComEd, the gas companies, and the program implementation contractor. ComEd will work with the gas companies to establish inspection protocols for this program, and will require that all work must meet or exceed the utilities' standards.</p>
Target Market	This program will be targeted to PHAs providing housing assistance to households with incomes at or below 80% of the Area Median Income.
Marketing Strategy	Marketing and outreach will be targeted to each of the PHAs in the ComEd, Nicor Gas, and Peoples Gas / North Shore Gas's service territory. Additional outreach will target contractors that work with PHAs.
Eligible Measures	Eligible measures will include LED and energy efficient lighting retrofits, programmable thermostats, advanced power strips, faucet aerators, low-flow showerheads, pipe insulation, furnaces, water heaters, boiler tune-ups

Program Name	Public Housing Retrofits					
	and replacements, ductless heat pumps, air sealing, attic and wall insulation, and air conditioning window units.					
Program Targets	Participation Levels					
		2018	2019	2020	2021	Total
	Total Assessments	2,130	2,130	2,130	2,130	8,520

Program Name	Public Housing Retrofits				
Annual Savings Targets					
	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	1,826	3,651	5,476	6,154	6,154
Net MWh	1,826	3,651	5,476	6,154	6,154
Gross Therms	7,998	15,996	23,993	31,991	31,991
Net Therms	7,998	15,996	23,993	31,991	31,991
Gross MWh (therm conversion)	234	469	703	937	937
Net MWh (therm conversion)	234	469	703	937	937
Gross Composite MWh	2,060	2,294	2,529	2,763	2,763
Net Composite MWh	2,060	4,120	6,179	7,091	7,091
First Year Annual Savings					
Gross MWh	1,826	1,826	1,826	1,539	7,015
Net MWh	1,826	1,826	1,826	1,539	7,015
Gross MW	0.6	0.6	0.6	0.4	2.2
Net MW	0.6	0.6	0.6	0.4	2.2
Gross Therms	7,998	7,998	7,998	7,998	31,991
Net Therms	7,998	7,998	7,998	7,998	31,991
Gross MWh (therm conversion)	234	234	234	234	937
Net MWh (therm conversion)	234	234	234	234	937
Gross Composite (MWh)	2,060	2,060	2,060	1,773	7,953
Net Composite (MWh)	2,060	2,060	2,060	1,773	7,953

Program Name

Public Housing Retrofits

Program Budget

	2018	2019	2020	2021	Total
Administration	\$175,000	\$179,375	\$183,859	\$188,456	\$726,690
Implementation	\$344,046	\$344,046	\$344,046	\$344,046	\$1,376,184
Incentives	\$1,638,315	\$1,638,315	\$1,638,315	\$1,638,315	\$6,553,259
Marketing and Other	\$32,766	\$32,766	\$32,766	\$32,766	\$131,065
Total	\$2,190,127	\$2,194,502	\$2,198,986	\$2,203,583	\$8,787,198

Cost-Effectiveness Results

	Test Results
TRC	0.66
UCT	0.64
CCE	\$0.131

Program Name	Rural Small Business Kits Program
Program Description	Rural Small Business Kits Program offers an innovative program designed to serve some of the hardest to reach customers in ComEd territory: rural small business customers. Franklin Energy proposes to specifically target small businesses in rural counties within the ComEd service territory. Our solution provides a streamlined approach, making it easy for customers to begin enjoying the benefits of energy efficiency measures. The Rural Small Business Kits Program will offer customers the opportunity to order kits of energy efficiency measures.
Program Duration	January 2018 through December 2018
Collaboration	None
Delivery Strategy	<p>The Rural Small Business Energy Efficiency Kits Program will offer customers the opportunity to order kits containing energy efficiency products as easily as they order other supplies for their businesses. The products (measures) in these kits may include: (bathroom faucet aerator, kitchen faucet aerator, LED light bulb(s), advanced power strip, exit light retrofit kit, & pre-rinse spray valve for restaurant customers). The small business energy efficiency kits will be assembled and shipped by Resource Action Programs (RAP), a Franklin Energy Services company. The kits will be delivered directly to the customers' facilities and contain products/measures most useful to their types of business.</p> <p>The program will make it easy for customers to order kits through convenient and familiar options:</p> <ul style="list-style-type: none"> • Perform outbound calling to qualifying customers and they will be told they qualify for a free energy savings kit and can simply opt in. • Direct Mail Solicitation with detachable pre-printed enrollment card Program-specific toll-free telephone line, answered in Franklin Energy's existing Chicago office. Calls will be answered by highly qualified customer service personnel trained to handle kit ordering procedures, as well as general inquiries related to the program, kit products and their installation. <p>Program specific website which will promote the program and provide guidance to customers who want to order energy kits online for their business.</p>

Program Name	Rural Small Business Kits Program					
Target Market	This program is designed to target rural businesses with a peak demand of 100 kW or below. The program will target all types of small businesses with the greatest potential to save energy with the self-install measures: specifically, restaurants, retail facilities, and offices.					
Marketing Strategy	Franklin Energy will deliver the Rural Small Business Energy Efficiency Kits Program to market through a strong direct marketing strategy with key emphasis on niche target markets of customers within ComEd's rural service territory. This approach presents the opportunity to offer greater customer value through a more customized and personalized approach for product and service offerings and distribution processes tailored to meet the needs of ComEd's rural customers. It also provides the utility with an opportunity to increase customer engagement and loyalty.					
Eligible Measures	These kits will contain products particularly selected for specific business types, including restaurants, retail, and offices. For example, a restaurant kit will contain sink aerators, a pre-rinse spray valve, exit sign LED retrofit kit, and LED bulbs, while an office kit will include an Advanced Power Strip, bathroom and kitchen aerators, exit sign LED retrofit kit, and LED bulbs.					
Program Targets	Participation Levels					
		2018	2019	2020	2021	Total
	Total Kits	2,750	-	-	-	2,750

Program Name	Rural Small Business Kits Program				
Annual Savings Targets					
	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	1,046	1,258	1,440	1,204	1,204
Net MWh	931	1,120	1,282	1,072	1,072
First Year Annual Savings					
Gross MWh	1,046	212	182	-	1,440
Net MWh	931	189	162	-	1,282
Gross MW	1	0	0	-	1
Net MW	1	0	0	-	1
Program Budget					
	2018	2019	2020	2021	Total
Administration	\$0	\$0	\$0	\$0	\$0
Implementation	\$532,707	\$0	\$0	\$0	\$532,707
Incentives	\$137,191	\$0	\$0	\$0	\$137,191
Marketing and Other	\$197,300	\$0	\$0	\$0	\$197,300
Total	\$867,198	\$0	\$0	\$0	\$867,198
Cost-Effectiveness Results					
	Test Results				
TRC	0.59				
UCT	0.59				
CCE	\$0.096				

Program Name	Power TakeOff – MBCx Energy Advisor Program
Program Description	<p>The Monitoring Based Commissioning (MBCx) Energy Advisor program utilizes interval smart meter data to help businesses uncover low-/no-cost energy saving opportunities and then receive individualized feedback from an expert Energy Advisor regarding tasks that can be taken by the business to realize the identified savings. Our MBCx approach follows a four-step process to engage participants through a series of prospecting, energy use analysis, reporting, and personalized Energy Advisor assistance. The objectives of the program are to help businesses better understand their energy usage relative to operations, identify energy saving opportunities, develop an action plan to implement low-/no-cost energy reduction measures, document actions taken by participants, and provide post-implementation monitoring and verification of net energy savings achieved. This process and program is designed to be cyclical in nature with the objective for each participating business to implement at least one identified energy saving opportunity during the year.</p>
Program Duration	January 2018 through December 2018
Collaboration	None
Delivery Strategy	<p>The first phase in the program involves data mining ComEd’s business account smart meter data to identify specific businesses that appear to be ideal candidates for the program using Power TakeOff’s screening criteria. This process enables Energy Advisors to only target select accounts, thereby reducing marketing costs, and provide individualized feedback to each prospective participant. All prospective and enrolled businesses are virtually engaged through a combination of phone calls, webinars, custom emails, and custom mailed reports.</p> <p>Once the business is engaged, the Energy Advisor will provide custom feedback regarding a wide range of energy efficiency saving opportunities, with a focus on low-/no-cost operational and maintenance projects. It is then the businesses’ responsibility to implement the identified opportunities and record their specific actions. Power TakeOff then provides monitoring and verification after changes are implemented and savings are reported back to the business.</p> <p>The intent of the program is to provide an ongoing, cyclical process for businesses to continually receive personalized feedback regarding their energy usage and energy efficiency strategy as needed from an Energy Advisor.</p>

Program Name	Power TakeOff – MBCx Energy Advisor Program																																																											
Target Market	All targeted customers taking delivery service from ComEd are eligible for the program regardless of their choice of supplier.																																																											
Marketing Strategy	Given the unique data mining prospecting techniques used to create target account lists for this program, minimal mass marketing efforts are undertaken by this program. Instead, individual accounts are selectively targeted by phone, email, and mailed reports with custom information. Occasionally, accounts that have been filtered for the same criteria may receive a targeted postcard, mailed brochure or other promotional piece to introduce the program to the prospect.																																																											
Eligible Measures	All measures implemented by participating businesses will be analyzed using custom, account specific monitoring and verification.																																																											
Program Targets	<p>Participation Levels</p> <table border="1"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Total Measures</td> <td>833</td> <td>-</td> <td>-</td> <td>-</td> <td>833</td> </tr> </tbody> </table> <p>Annual Savings Targets</p> <table border="1"> <thead> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td colspan="6" style="text-align: center;">Cumulative Persisting Annual Savings</td> </tr> <tr> <td>Gross MWh</td> <td>2,956</td> <td>2,956</td> <td>2,373</td> <td>2,373</td> <td>2,373</td> </tr> <tr> <td>Net MWh</td> <td>2,855</td> <td>2,855</td> <td>2,331</td> <td>2,331</td> <td>2,331</td> </tr> <tr> <td colspan="6" style="text-align: center;">First Year Annual Savings</td> </tr> <tr> <td>Gross MWh</td> <td>2,956</td> <td>-</td> <td>-</td> <td>-</td> <td>2,956</td> </tr> <tr> <td>Net MWh</td> <td>2,855</td> <td>-</td> <td>-</td> <td>-</td> <td>2,855</td> </tr> </tbody> </table>							2018	2019	2020	2021	Total	Total Measures	833	-	-	-	833		2018	2019	2020	2021	Total	Cumulative Persisting Annual Savings						Gross MWh	2,956	2,956	2,373	2,373	2,373	Net MWh	2,855	2,855	2,331	2,331	2,331	First Year Annual Savings						Gross MWh	2,956	-	-	-	2,956	Net MWh	2,855	-	-	-	2,855
	2018	2019	2020	2021	Total																																																							
Total Measures	833	-	-	-	833																																																							
	2018	2019	2020	2021	Total																																																							
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Net MWh	2,855	-	-	-	2,855																																																							

Program
Name

Power TakeOff – MBCx Energy Advisor Program

Program Budget

	2018	2019	2020	2021	Total
Administration	\$0	\$0	\$0	\$0	\$0
Implementation	\$1,125,757	\$0	\$0	\$0	\$1,125,757
Incentives	\$0	\$0	\$0	\$0	\$0
Marketing and Other	\$0	\$0	\$0	\$0	\$0
Total	\$1,125,757	\$0	\$0	\$0	\$1,125,757

Cost-Effectiveness Results

	Test Results
TRC	0.70
UCT	0.73
CCE	\$0.095

Voltage Optimization & Third Party Program Elements

The VO and third-party program elements umbrella are projected to provide CPAS of 82,500 MWh, 345,833 MWh, 619,167 MWh, and 942,500 MWh for 2018, 2019, 2020 and 2021, respectively. We anticipate these program elements will attain 5% of our total CPAS goal in 2018, 10% in 2019, 13% in 2020, and 15% in 2021. VO optimizes voltage at points on the electric distribution system, thereby reducing electricity consumption by electric consumers' end use devices.

As has been previously discussed, we will solicit third-party energy efficiency programs as described in Section 8-103B(g)(4) of the Act. Starting in 2019, the second year of this Plan, ComEd will offer the selected third-party energy efficiency programs, which will provide funding to third-party implementers totaling \$25 million per calendar year. To prepare for the launch of these third-party programs in 2019, ComEd will conduct and participate in a number of activities during 2018, the first year of the Plan. These include, for example, coordinating with stakeholders to develop the bidder qualifications, performance measurement process, and contract structure described in Section 8-103B(g)(4), which will be subject to Commission approval.

Once approved, ComEd will conduct an RFP solicitation process to identify and contract with third-party vendors who will be the implementers for programs to be offered during one or more of the remaining calendar years in the Plan (2019-2021). ComEd will also work with stakeholders to identify specific areas in which to request programs. Potential program areas include, but are not limited to, income-eligible concepts, public sector concepts, technology concepts, customer segment-specific concepts (e.g., all electric),

and geographically constrained areas. Of particular interest are third-party programs for income-eligible customers. We have allocated approximately \$6 million of the \$25 million per year (2019-2021) for this important customer segment. Overall, these third-party programs can advance the portfolio in new areas of energy efficiency.

In accordance with the statute, ComEd will also retain an independent third party to score and rank the proposals submitted by potential third-party implementers based on their costs over total lifetime savings. This third party administrator will also assemble the third-party portfolio.

Once the third party implementers have been selected, ComEd will submit the list of implementers to the Commission for approval.

The following pages present a description of the VO program.

Program Name	Voltage Optimization																										
Program Description	Voltage Optimization, or VO, is a combination of Conservation Voltage Reduction (“CVR”) and Volt-VAR Optimization (“VVO”). The CVR approach strives to directly control the voltage of electricity supplied to end-use customers using transformer load tap changers, voltage regulators, and capacitors. The VVO approach coordinates capacitor bank operations to flatten reductions across an entire feeder or network of feeders.																										
Program Duration	January 2018 through December 2018																										
Collaboration	None																										
Delivery Strategy	Internal ComEd work through Project Management, Smart Grid and Capacity Planning, and Distribution Operation teams.																										
Target Market	A total of 181 ComEd distribution substations with distribution feeders estimated to be viable (cost-effective) will be targeted during the Plan. Unlike most energy efficiency programs, VO does not require consumers to change energy utilization habits or purchase additional equipment to be effective.																										
Marketing Strategy	Not Applicable																										
Eligible Measures	VO will be deployed on distribution class substations where the benefit of reduced customer energy consumption is expected to outweigh the cost of deployment. Delivery system work on feeders and substations will be prioritized insofar as practical in order of cost effectiveness, and on selected smart substations upgraded or installed as part of ComEd’s Energy Infrastructure Modernization Act (“EIMA”) grid modernization efforts.																										
Program Targets	<table border="1"> <thead> <tr> <th colspan="7">Participation Levels</th> </tr> <tr> <th></th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th colspan="2">Total</th> </tr> </thead> <tbody> <tr> <td>Total Measures</td> <td>23</td> <td>79</td> <td>33</td> <td>46</td> <td colspan="2">181</td> </tr> </tbody> </table>						Participation Levels								2018	2019	2020	2021	Total		Total Measures	23	79	33	46	181	
Participation Levels																											
	2018	2019	2020	2021	Total																						
Total Measures	23	79	33	46	181																						

Program
Name

Voltage Optimization

Annual Savings Targets

	2018	2019	2020	2021	Total
Cumulative Persisting Annual Savings					
Gross MWh	83,000	258,000	486,000	757,000	757,000
Net MWh	83,000	258,000	486,000	757,000	757,000
First Year Annual Savings					
Gross MWh	83,000	175,000	228,000	271,000	757,000
Net MWh	83,000	175,000	228,000	271,000	757,000
Gross MW	13	28	36	43	120
Net MW	13	28	36	43	120

The costs of VO will be recovered under ComEd's distribution formula rate update process pursuant to Section 16-108.5 of the PUA or Article IX of the PUA, as applicable.

Cost-Effectiveness Results

	Test Results
TRC	3.82
UCT	3.82

Demand Response Program Element

For the demand response goal, we propose to implement a demand response program element that will fund the enrollment into our air conditioning (“AC”) Cycling program of any purchasers of qualified smart thermostats from our other residential program elements. Through this effort, we expect to achieve each of the annual MW savings goals.

However, because “demand response measures” is defined by statute as “measures that decrease peak electricity demand or shift demand from peak to off-peak periods,”¹ we still believe that the demand reductions achieved by the energy efficiency programs fit squarely within the statutory definition of demand response.

Even so, we propose to fund the enrollment into our AC Cycling program for any purchasers of qualified smart thermostats from our existing residential programs. This approach provides for a cost-effective demand response program, with a TRC test result of 1.33.² We expect a participation level of approximately 10,000 to 12,000 customers per year with this program.

We note that the statutory demand response goal only applies to those customers who are receiving bundled energy and customers taking hourly service from ComEd. See

¹ See 20 ILCS 3855/1-10

² It should be noted that, if the program had to consider the purchase of a \$250 smart thermostat by the customer, the TRC test result of the program would drop to 0.25, and would not be cost-effective. By targeting the program solely to existing energy efficiency program participants, only the marginal participation costs need to be considered.

220 ILCS 5/8-103B(g)(4.5). Because our programs are supplier-agnostic, we applied the same retention factors to residential demand reductions as provided to the IPA for the most recent draft procurement plan.

Program Name	Demand Response – Smart Thermostat Enrollment					
Program Description	This program element targets customers who purchase or receive smart thermostats through ComEd’s residential energy efficiency programs, and provides additional incentives for these customers to enroll in the AC Cycling program.					
Program Duration	January 2018 through December 2021					
Collaboration	N/A					
Delivery Strategy	This program will be delivered and managed using the same infrastructure that exists for ComEd’s AC Cycling program. It is expected that the marginal costs related to this new program would be associated with the cost of the additional customers on the program.					
Target Market	This program will be targeted toward residential customers that have already purchased a qualifying smart thermostat via any of ComEd’s energy efficiency programs.					
Marketing Strategy	Marketing will be specifically targeted toward existing program participants, as well as customers that receive marketing materials related toward smart thermostats.					
Eligible Measures	Currently, the Nest® thermostat is eligible for this program.					
Program Targets	Participation Levels					
		2018	2019	2020	2021	Total
	Total Participants	10,832	11,781	11,782	11,731	46,125

Program
Name

Demand Response – Smart Thermostat Enrollment

Annual Demand Reduction Targets

	2018	2019	2020	2021	Total
Gross MW	7.58	8.25	8.25	8.21	-
Net MW	7.58	8.25	8.25	8.21	-

Program Budget

	2018	2019	2020	2021	Total
Administration	\$176,800	\$176,800	\$176,800	\$176,800	\$707,200
Implementation	\$593,274	\$729,995	\$906,720	1,082,678	\$3,312,667
Incentives	\$0	\$0	\$0	\$0	\$0
Marketing and Other	\$324,948	\$353,441	\$353,451	\$351,916	\$1,383,756
Total	\$1,095,022	\$1,260,236	\$1,436,971	\$1,611,394	\$5,403,623

Cost-Effectiveness Results

	Test Results
TRC	1.33
UCT	1.33
CCE	N/A

Market Transformation

General Market Transformation

The objective of the Market Transformation Program is to provide information, tools, and training to develop energy market transformation strategies to change the decisions, behaviors, and business practices of customers, and to channel partners that can facilitate the realization of energy efficiency savings, primarily for new measures. An example of a successful market transformation strategy is codes and standards requiring the level of energy use for a new product.

The Plan 5 Market Transformation Program is designed to provide continued funding for the kinds of programs proposed by DCEO in its PY10-12 Plan.³

This Program is divided into four elements:

- 1. Information and Tools.** This program element includes, for either specific measures or for larger programs, market transformation initiatives designed to improve channel partners' ability to promote energy efficiency awareness and participation, as well as to target customers. Also included are programs designed to improve channel partners' ability to obtain and process information regarding energy efficiency and energy efficiency projects.
- 2. Networks.** This element includes initiatives that target key groups that would be ideal program partners. Investments in forging new partnerships with channel

³ See *Illinois Department of Commerce and Economic Opportunity*, ICC Docket No. 13-0499.

providers that surround new measures or reach new customer segments will ultimately result in additional savings.

3. Emerging Technologies. This element includes specific market programs to reduce or eliminate barriers to new program designs, measures, or energy efficient technologies.

4. Market Characterization & Analysis. This element includes studies to evaluate energy efficiency measure potential, market and technology trends, and impacts of standards.

There will be an initial emphasis within the Market Transformation Program to improve program delivery to public sector and income-eligible customers. Given that DCEO historically administered these programs, we will need to forge new network relationships and create market awareness regarding program value. Key public sector energy markets such as wastewater treatment, street lights, and schools will be initially targeted to catalyze the development of new energy efficiency projects with these customers. New project delivery capabilities will also be needed for income-eligible programs. We further intend to provide communities served by income-eligible programs with additional job training that will be necessary to scale up such programs.

The landscape of energy efficiency technologies is constantly changing. Over the longer term, the portfolio will need to identify new energy savings measures with longer measure lives. The Market Transformation Program will therefore be closely coordinated with the R&D initiative within the Plan. New programs will also need to be designed and delivered to realize the savings potential of new measures. The Market

Transformation Program will provide the information, tools, and training to enable those energy savings.

The adoption of energy saving measures involves not just an informed customer, but knowledgeable builders, equipment providers, and installers. This program will improve the capability of such market actors to make informed decisions regarding energy efficiency. The focus of the Market Transformation Program will be to support the increased market adoption of new measures, rapid growth of current programs, or the targeting of new customer niches.

Section 8-103B also requires that utilities' plans must "[p]resent specific proposals to implement new building and appliance standards that have been placed into effect." 220 ILCS 5/8-103B(g)(2). The Plan 5 Market Transformation Program proposal thus includes elements that are designed to increase implementation of new building codes and appliance standards that have already been adopted in Illinois.

While the Illinois Environmental Protection Agency will take over DCEO's prior role of maintaining a baseline responsibility to fund and implement a program to help inform builders and inspectors about new building codes updates in 2018 and beyond, ComEd (together with other utilities) will continue to provide additional training and informational programs for market actors responsible for applying building codes. ComEd expects that the statewide Illinois Enhanced Code Compliance Program may be funded in 2018 either through R&D or Market Transformation Program budgets. These programs will meet or exceed the pre-2018 legacy level of effort to implement new building and appliance standards that have been placed into effect.

The Market Transformation Program will seek to accumulate energy savings where possible, but the nature of the program is to enable indirect, long-term savings. Where those savings are not claimed within other elements of the portfolio, EM&V will seek to assign attribution to Market Transformation to the extent warranted.

In addition to the program elements described above, we are offering two other program elements under the *ComEd Energy Efficiency Program - Energy Insights Online* (“EIO”) and Energy Usage Data Systems (“EUDS”). Each of these elements is viewed as a market transformation program for the C&I sector. Because we believe that the first step in customers taking control of their energy management is to better understand their energy usage, these program elements are designed to inform and educate customers. Each is described in more detail below.

Energy Insights Online

EIO is a web-based, energy consumption tracking tool that was developed to help energy managers monitor energy usage for their businesses and reduce energy costs.

Such data can be used to analyze consumption trends and load profiles, which is useful in discovering energy saving opportunities. We have made EIO available for free to C&I customers that have

recording or smart meters on their facilities and access to internet.

EIO HIGHLIGHTS

Since 2008, ComEd has seen a significant increase in program awareness and participation in its Energy Insights Online program because of marketing / promotional campaigns. These marketing efforts included bill messaging, training sessions, web sites, brochures, newsletters and articles. Energy Insights Online customer enrollments grew from 400 subscribers in 2008 to 5,457 subscribers in 2016, an increase of 1,264%.

By providing free energy data information to our customers, we strive to be the industry leader in data availability, data transparency, and data services to our C&I customers.

We will continue to build awareness of the program via marketing training. The training emphasizes basic tool functionality, as well as data analysis and benchmarking. All marketing and training programs attempt to build a chain of action beginning with the use of the tools and advancing to the making of efficiency investments via participation in the Business incentive program elements.

Energy Usage Data System

EUDS is a web-based tool that provides customers with an automated system to obtain aggregated, whole building energy usage on a monthly basis.

Prior to June 2008, obtaining whole building energy data was a fee-based, manual process. As part of Plan 1, we developed a system that automated provision of this data and enabled an electronic link

to the U.S. EPA's building energy benchmarking system known as Portfolio Manager.

We are one of the few utilities to automate this data retrieval process and have received national recognition.

EUDS enables customers to rate building energy performance, set investment priorities, verify and track progress of improvement projects, and work towards gaining EPA

EUDS HIGHLIGHTS

ComEd saw a significant increase in program awareness and participation in its Energy Usage Data System as a result of recent marketing / promotional campaigns. Buildings being benchmarked using the Energy Usage Data System increased from 70 in 2008 to 7,395 in 2016 - an increase of 10,464%. Additionally, the number of Building Managers using the tool has increased from 36 in 2008 to 1,714 in 2016, an increase of 4,661%.

ENERGY STAR recognition. Since inception, EUDS has provided over 91,300 whole building energy usage requests for use in ENERGY STAR's Portfolio Manager.

We will continue to build awareness of the program via marketing as well as hands-on and web-based training. The training emphasizes basic tool functionality, as well as data analysis and benchmarking. All marketing and training programs emphasize ComEd incentive programs for increased participation in the ComEd Energy Efficiency Program portfolio. Over Plan 5's timeframe, additional emphasis will be placed on integrating this tool with the other Business program elements. For example, we will assist customers in their efforts to comply with the City of Chicago energy benchmarking ordinance.

We have budgeted \$2.0 million over the next four years for the continued implementation of these two programs.

Smart Meter Connected Devices

The ComEd Smart Meter Connected Devices ("SMCD") service is offered to our residential customers who have smart meters installed at their homes. Under this service, customers can receive electricity usage and estimated electricity cost information from ComEd through a smart device that is wirelessly connected to their smart meter. With access to more information, customers can make educated decisions that help them better control electricity use and achieve savings on electric bills.

As of June 2017, ComEd customers have enrolled 560 smart devices in the SMCD service. Since the SMCD service launch, we have provided guidance to the Illinois

Science and Energy Innovation Foundation (“ISEIF”) on studying the usage patterns of ComEd customers in behavioral studies that show the effectiveness of using a smart device. ComEd customers can enroll in the service by purchasing compatible smart devices and registering their smart devices on the ComEd.com website. The SMCD team has provided instructions, both written and in video format. The SMCD team also has a dedicated email inbox and telephone line to provide participant assistance and service. Once the registration is complete, we will connect the customer-owned smart device wirelessly over the Silver Spring Networks. There are a variety of smart devices available to customers with varying capabilities. They generally fall into the following categories:

In-Home Displays (“IHDs”)

IHDs are user-friendly tabletop, smart devices that provide customers with the ability to monitor their energy usage patterns and costs. The data is streamed to the IHD from the ComEd smart meter. IHDs display estimated electricity costs (Usage * Cost) based on the fixed-price electricity supply rate from ComEd or other electric suppliers.

Energy Gateway

The Energy Gateway is a smart device that connects the ComEd smart meter to the Internet (Ethernet LAN), communicating wirelessly using an Ethernet cable or Wi-Fi. Depending on the smart device, you can view your near real-time and historical energy usage from wherever you are through a website associated with the smart device, or stream your usage to any supported third-party cloud service.

Smart Thermostat

More than just a thermostat, these smart devices feature Wi-Fi connectivity to the Internet. Features for these smart devices include programmability to adjust temperature, display of energy usage, interactive mobile apps, web portal, and live weather updates. This controllable thermostat communicates wirelessly with a ComEd smart meter and the Internet.

We will continue to build awareness of the SMCD service via marketing, which includes print (AMI Post Installation Mailers, etc.), web-based (Facebook, Twitter, etc.), and audio/visual customer testimonials that have been posted on various social media websites (YouTube, Facebook, Twitter, etc.).

We have budgeted \$2 million over the next four years for the continued implementation and expansion of the SMCD service.

Education & Outreach

Another key component of our portfolio is Education & Outreach (“E&O”). This component has two specific goals: (1) educate and raise awareness about the value and benefits of energy efficiency to our customers; and (2) drive customers to participate in energy efficient activities to help them save money on their electric bills.

While these activities by themselves may not necessarily lead to kWh savings that can be counted towards the energy savings goals, these efforts can lead to customer actions that will increase the adoption of energy efficiency.

E&O uses past successes and market research to build plans for future tactical

executions and we continue to focus on the customer engagement process detailed below.

Customer Engagement Process

Our Customer Engagement Process essentially consists of the following four steps:

Step 1 is to **build** awareness of the value of energy efficiency; Step 2 is to **inform** the customer about the value of specific energy efficiency actions and initiatives, whether it is participating in the programs offered in the Plan or making behavioral changes; Step 3 is to motivate the customer to **take action** – and make decisions to increase their level of energy efficiency; and Step 4 is to encourage the customer to become an **advocate** for energy efficiency. We measure this level of engagement through “How you Heard” data, JD Power customer survey results, digital ad tracking that measures traffic to ComEd.com, email engagement, and online scheduling metrics. We understand that this is not a simple or quick process and that not all customers will be able to be moved across the entire spectrum. Nevertheless, we still believe there is much success to be gained by focusing efforts on increasing awareness of energy efficiency among our customers.

Awareness Strategy

Awareness initiatives will focus primarily on delivering the message of energy efficiency and overall consumer energy management to consumer markets, including Spanish-speaking markets. The awareness initiatives will include two facets: general communication and behavioral marketing. General communications will deliver

consistent communications across a variety of marketing, media, and advertising channels, while behavioral marketing will attempt to “nudge” customers to take actions to increase their energy efficiency.

Awareness initiatives will provide customers with knowledge about energy efficiency and the programs offered under the Plan, as well as how their energy usage affects their bills. These marketing efforts will result in customers continuing to become aware and take action to lower their electric bills.

General awareness initiatives and tactics to be implemented may include the following:

- Carefully timed, high-impact awareness marketing campaigns designed to reach a high percentage of customers multiple times, generally over an 8-10 week period. Tactics may include, TV, radio, digital, social, and out-of-home executions.
- Working with ComEd Communication to secure earned media coverage such as Energy Doctor radio and TV interviews, ComEd energy efficiency focused partnerships, press releases, and news media stories.
- Promoting event marketing that leverages the energy efficiency message through ComEd events such as *Switch on Summer*, our Energy Force Ambassadors, and attendance or participation at community-sponsored events and energy efficiency green fairs. These events provide opportunities for one-on-one interactions with customers and data collection, including email addresses and potential candidates for our Home Energy Assessments.

-
- Engaging commercial customers through segment-focused business e-newsletters to encourage participation in our programs and use of our online energy tools.
 - Offering a Business Expo for C&I customers and trade allies to build awareness of ComEd Energy Efficiency Program offerings and overall energy efficiency.
 - Posting videos on the ComEd.com website that illustrate our Residential and Business offerings.

Behavioral Waste Focus

Embedded in the awareness strategy will be a focus on behavioral waste associated with energy efficiency. For purposes of Plan 5, behavioral waste is confined to customer actions or inactions when using energy-consuming equipment, which leads to more energy being used than what is otherwise needed. Examples of waste would include not turning off lights or televisions when no one is in the room. As such, behavioral waste can be reduced by changes in customer behavior.

We will work to drive key messages related to these efforts within our marketing campaigns. Simple messages like “*turn off your lights*” or “*see how a smart thermostat can help you use less energy*” are behavioral messages that can lead to substantial energy savings if implemented on a large scale.

Cross-Cutting Activities

The portfolio described in Section 5 is integrated and managed through a series of activities that extend beyond the boundaries of any given program element. These activities are budgeted as common costs across the portfolio and include portfolio management, market research, tracking and reporting, R&D / emerging technologies, risk management, and program evaluation. Each activity, in turn, is discussed below.

Portfolio Management

Portfolio Management consists of several key activities required to properly manage the portfolio. These elements are Executive Management, Planning, Implementation, and Administration, Market Research, and Tracking & Reporting. These elements are considered portfolio-level costs because they provide services across the entire portfolio. Each element is further discussed below.

Executive Management. This function is responsible for the development, communication, and execution of our portfolio strategy, and includes the following activities:

- **Portfolio Strategy:** Develop the strategy guiding the composition of the portfolio, including allocation of available resources across sectors and programs.
- **External Coordination:** Communicate our strategy and progress to the Commission and the SAG on a regular basis.
- **Internal Coordination:** Identify internal systems and functions that contribute to or are affected by program implementation and management. Coordinate activity to

ensure internal tracking and reporting systems are in place and integrated as necessary. Ensure use of consistent messaging and provide general oversight of planning and implementation.

- **Budgeting and Financial Management:** Set and manage the annual portfolio and individual program budgets consistent with the portfolio strategy and available resources. Track costs against budgets on a monthly basis.
- **QA/QC:** Manage overall portfolio quality assurance, review data from individual programs, and monitor quality of internal systems and ComEd-provided services.
- **Communications and Marketing Strategy:** Coordinate development of the overall portfolio messaging and ensure that program implementers meet ComEd-developed standards. Within this function, ComEd designs and executes its cross-cutting, awareness-building, and education elements.
- **ICC Docket Management:** Manage energy efficiency formula ratemaking dockets and multi-year Plan dockets before the ICC, as well as any TRM-related and Energy Efficiency Policy Manual-related dockets that may occur.

Planning. This function provides the analysis and ongoing market intelligence to support the Executive Management function. Key policy and planning activities include:

- **Program and Portfolio Analysis:** Analyze the energy savings and cost-effectiveness of the program elements and of the portfolio as a whole. The planning process is ongoing and includes continual dialogue with the SAG.

-
- **Program Metric Analysis:** Establish and periodically adjust portfolio and individual program performance metrics related to savings acquisition, cost-effectiveness, quality control, and customer service.
 - **Budget Analysis:** Develop and review annual program implementation budgets relative to program metrics and performance.
 - **Program Design:** Develop programs using known best practices from existing programs, prior program experience, and input from key stakeholders. Refine program design in collaboration with implementation team and stakeholders.
 - **Evaluation Management:** Manage the independent evaluator contract, in conjunction with the ICC Staff, which includes managing the evaluation work and incorporating results into ongoing program and portfolio reviews.
 - **Data Analytics:** Provide data analytic support at the measure, program, and portfolio level to ensure the portfolio mix is maximized across all key requirements.
 - **TRM:** Manage the process with the SAG, TRM administrator, and other utilities. Represent ComEd during discussions and technology reviews. Provide technical expertise in support of TRM update process.
 - **Energy Efficiency Policy Manual:** Manage the process with the SAG and other utilities. Represent ComEd during discussions and policy revisions / additions.
 - **Emerging Technology / R&D Management:** Manage a formal R&D structure, which includes identifying key emerging technologies and program concepts, and

designing and executing research or pilot projects to test feasibility for inclusion in ComEd's portfolio.

- **Reporting:** Coordinate preparation of annual reports to the Commission and quarterly reports to the SAG on portfolio performance.
- **Rider EEPP Management:** Support the management and preparation of annual Rider EEPP update filings.

Implementation and Administration. This function provides for the implementation and administration of the program elements within our portfolio. These activities also involve critical coordination between internal and external systems. Major activities include:

- **Implementation Planning:** Develop plans and processes to implement and integrate the overall portfolio management structure with individual program elements. Identify implementation-critical paths and respond accordingly. Produce final program designs, including setting incentive levels. Provide program feedback to planning team.
- **Support Back Office System Design and Implementation:** Identify requirements for program customer relationship management, financial incentive fulfillment, and tracking and reporting. Identify required new systems/system enhancements and coordinate procurement and installation.
- **Procurement Support:** Deliver many program services through third-party vendors or implementation contractors. RFPs will be developed for specific competitive

services. Contracts for program element implementers will be developed and will include performance provisions to mitigate ComEd's risk. ComEd will coordinate with appropriate internal departments to ensure best practices and competitive pricing are realized.

- **Program Management:** Manage program implementation, including oversight of implementation contractors, through assigned customer segment teams. These teams have responsibility for ensuring effective implementation processes are in place and followed, as well as for regular reporting of program progress. All programs undergo regular performance reviews, and ComEd retains the right to replace underperforming contractors.
- **Trade Ally Network Management:** Ensure that program implementers maintain appropriate levels of involvement and communication with trade allies. Communicate program changes with trade allies and solicit feedback regarding program performance with respect to ease of customer acquisition, incentive levels, marketing, and collateral requirements.
- **Management of Program Tracking and Reporting:** Ensure program implementers, as well as internal staff, consistently use the program's tracking system. Responsibilities include monthly system downloads and preparation of status reports on program performance and cost.
- **Internal EM&V:** Conduct ongoing program evaluation as a check on overall program quality and as an early-warning system to spot potential performance or

customer service issues using the weekly performance scorecards, as well as on-site verification and customer surveys.

Market Research

Over the past several years, we have conducted various market research projects associated with energy efficiency. For Plan 5, we will continue our more formal set of market research projects that support the information needs associated with the design, implementation, and evaluation of the portfolio. Key research activities may include:

- **Attitude, Awareness & Stated Behavior Research.** The primary objective is to measure and track customers' attitudes toward energy efficiency, awareness of our programs, and stated behaviors relative to energy efficiency actions. We will regularly conduct the research to quantify and assess the impact that our programs have on consumers' energy efficiency attitudes and behaviors over time.
- **Program Assessment Research.** The primary objective is to measure customer satisfaction with a given program and with key elements of program implementation. This research will identify opportunities to adjust management, delivery, and marketing of programs to improve program performance.
- **New Program Potential Research.** The primary objectives are to assess customer interest in, and the appeal of, a prospective program concept or to evaluate alternative value propositions. This research will support customer-driven program design and implementation features, leading ultimately to greater customer interest, acceptance, and adoption.

For market research activities, we have budgeted \$1.7 million for each calendar year.

Tracking & Reporting

We commissioned the development and ongoing enhancement of a portfolio tracking and reporting database system in 2008. While this platform has served us well to date, the underlying platform has become outdated and inflexible as it relates to the variety of new and innovative program designs and expanding data requirements associated with Plan 5. We therefore plan to replace the existing system with a new platform that maximizes analytic capabilities.

For the tracking system, we have budgeted \$3.4 million over the four-year Plan cycle to accommodate acquisition, commissioning, and startup of the new system, as well as data transition and decommissioning of the legacy platform.

Risk Management

Inherent in any portfolio of energy efficiency is the uncertainty associated with program performance, evaluation outcomes, and funding continuity. These uncertainties lead to risks for ComEd. There are two primary risks that must be managed within our portfolio:

- **Achievement** – the risk that we do not achieve the annual MWh targets that are approved in the Plan.
- **Budget** – the risk that we exceed the applicable budget.

Over the past Plan cycles, several potential risk-mitigating factors were introduced, including the IL-TRM and the Policy Manual. Both manuals have been approved by the

Commission. The TRM deems the energy savings for many energy efficiency measures, removing any risk concerning the measure savings. The Policy Manual has formalized the net-to-gross (“NTG”) framework that establishes the NTG value set for most programs, again reducing energy savings risk.

For Plan 5, the major risks that remain include the following:

- Energy prices continue to decline, although some price rebound has begun to surface in the capacity markets.
- While an approved Policy Manual, NTG framework, and TRM exist, continued uncertainty in the interpretation of certain facets of these values and frameworks adds a new layer of unpredictability, particularly in the application of *ex-post* reductions to energy savings.

ComEd’s Risk Management Process

Successful management of these risks depends on two key factors:

- **Strong data tracking and reporting** – We currently collect implementation and tracking data on a daily or weekly basis for most programs. This allows us to monitor the progress and performance of our programs. Program managers can modify marketing tactics and incentive structures as needed to remediate program performance shortfalls.
- **Cross-program flexibility** – Occasionally a program will not respond to changes in marketing or incentives, and in those cases the program managers may

decide it is best to shift funds to other programs in an effort to offset the savings shortfall.

Portfolio Budget

The following tables presents the budget for each program element or activity during each Calendar Year. Key highlights follow the table.

TABLE 15 - PORTFOLIO BUDGET

Programs	CY 2018 Cost	CY 2019 Cost	CY 2020 Cost	CY 2021 Cost	4 Year Plan Cost
Residential - EE Programs					
Residential Behavior	\$7,276,250	\$6,683,156	\$6,390,235	\$6,397,491	\$26,747,132
Lighting Discounts	\$29,628,322	\$20,374,890	\$19,902,463	\$19,642,036	\$89,547,711
Appliance Rebates	\$15,293,699	\$16,285,076	\$17,063,505	\$17,626,105	\$66,268,385
Fridge & Freezer Recycling	\$8,702,138	\$8,741,973	\$8,781,917	\$8,821,974	\$35,048,000
Single-Family Assessments	\$9,623,742	\$9,507,614	\$9,501,034	\$9,585,414	\$38,217,804
Multi-Family Assessments	\$4,051,681	\$4,056,311	\$4,060,795	\$4,065,392	\$16,234,180
Residential HVAC & Weatherization	\$7,839,466	\$7,904,203	\$7,991,560	\$8,106,305	\$31,841,535
Elementary Education	\$741,983	\$743,077	\$744,198	\$745,347	\$2,974,606
Residential New Construction	\$392,065	\$393,159	\$394,280	\$395,429	\$1,574,934
NTC Middle School Kits	\$664,083	\$0	\$0	\$0	\$664,083
RESIDENTIAL TOTAL	\$84,213,429	\$74,689,459	\$74,829,988	\$75,385,494	\$309,118,370
Income Eligible - EE Programs					
Lighting Discounts - IE	\$4,468,130	\$3,861,735	\$4,062,446	\$4,563,234	\$16,955,545
Single Family Retrofits – IE	\$11,649,080	\$11,643,470	\$11,638,436	\$11,649,021	\$46,580,008
Multi Family Retrofits – IE	\$8,250,848	\$8,255,223	\$8,259,707	\$8,264,304	\$33,030,082
Affordable Housing New Construction	\$2,662,348	\$2,930,445	\$3,224,795	\$3,553,078	\$12,370,666
Food Bank-LED Distribution	\$3,214,478	\$0	\$0	\$0	\$3,214,478
UIC-ERC Low Income Kits	\$3,154,244	\$0	\$0	\$0	\$3,154,244
Third Party Income Eligible	\$0	\$6,000,000	\$6,000,000	\$6,000,000	\$18,000,000
Income Eligible Outreach	\$2,000,000	\$1,500,000	\$1,500,000	\$1,500,000	\$6,500,000
INCOME ELIGIBLE TOTAL	\$35,399,128	\$34,190,873	\$34,685,384	\$35,529,637	\$139,805,023
Business - EE Programs					
Incentives	\$56,906,019	\$56,897,783	\$53,051,721	\$54,470,460	\$221,325,983
Small Business	\$46,340,924	\$44,005,709	\$45,256,804	\$46,404,085	\$182,007,522
Business Instant Discounts	\$16,345,016	\$15,966,264	\$14,033,914	\$12,744,575	\$59,089,770
AC Tuneup	\$4,715,000	\$4,936,407	\$5,183,448	\$5,447,318	\$20,282,173
Non-Res New Construction	\$9,676,738	\$10,059,332	\$10,597,900	\$10,972,801	\$41,306,771
Industrial Systems	\$5,483,544	\$5,753,036	\$5,971,206	\$6,123,651	\$23,331,437
RetroCommissioning	\$8,105,642	\$8,291,934	\$8,419,942	\$8,488,839	\$33,306,357
Strategic Energy Management	\$2,189,000	\$2,193,375	\$2,197,859	\$2,202,456	\$8,782,690
LED Streetlighting	\$24,212,862	\$22,987,612	\$25,221,960	\$19,519,192	\$91,941,627
Facility Assessments	\$1,887,500	\$1,911,563	\$1,936,225	\$1,961,508	\$7,696,795
Public Housing Retrofits	\$2,190,127	\$2,194,502	\$2,198,986	\$2,203,583	\$8,787,198
Rural Small Business Kits	\$867,198	\$0	\$0	\$0	\$867,198
Power TakeOff	\$1,125,757	\$0	\$0	\$0	\$1,125,757
Business Sector Outreach	\$4,650,000	\$3,150,000	\$3,150,000	\$3,150,000	\$14,100,000
BUSINESS TOTAL	\$184,695,327	\$178,347,517	\$177,219,967	\$173,688,467	\$713,951,279
VO & Third Party EE Programs					
Third Party Programs	\$0	\$19,000,000	\$19,000,000	\$19,000,000	\$57,000,000
Voltage Optimization	\$0	\$0	\$0	\$0	\$0
VO & THIRD PARTY TOTAL	\$0	\$19,000,000	\$19,000,000	\$19,000,000	\$57,000,000
Demand Response					
Demand Response	\$1,100,000	\$1,261,000	\$1,437,000	\$1,612,000	\$5,410,000
Market Transformation					
Market Transformation	\$1,600,000	\$1,600,000	\$1,600,000	\$1,600,000	\$6,400,000
EIO / EDS	\$500,000	\$500,000	\$500,000	\$500,000	\$2,000,000
Smart Meter Connected Devices	\$751,000	\$443,900	\$443,900	\$443,900	\$2,082,700
MARKET TRANSFORMATION TOTAL	\$2,851,000	\$2,543,900	\$2,543,900	\$2,543,900	\$10,482,700
Portfolio Level Costs					
Portfolio Level Costs	\$43,374,996	\$41,601,132	\$41,917,642	\$43,874,382	\$170,768,152
PORTFOLIO TOTAL	\$351,633,881	\$351,633,881	\$351,633,881	\$351,633,881	\$1,406,535,524

TABLE 16 – PORTFOLIO-LEVEL COST BREAKDOWN

Programs	CY 2018 Cost	CY 2019 Cost	CY 2020 Cost	CY 2021Cost	CY 2021Cost
M&V	\$10,549,016	\$10,549,016	\$10,549,016	\$10,549,016	\$42,196,066
R&D	\$13,300,000	\$13,300,000	\$13,300,000	\$13,300,000	\$53,200,000
Market Research	\$800,000	\$300,000	\$300,000	\$300,000	\$1,700,000
Legal	\$300,000	\$300,000	\$300,000	\$500,000	\$1,400,000
Tracking System	\$1,250,000	\$700,000	\$700,000	\$700,000	\$3,350,000
Labor (Non-program specific)	\$10,294,900	\$10,603,747	\$10,921,859	\$11,249,515	\$43,070,022
General Program Costs	\$1,550,000	\$1,550,000	\$1,550,000	\$1,550,000	\$6,200,000
General Education and Awareness	\$5,331,080	\$4,298,369	\$4,296,766	\$5,725,850	\$19,652,065
PORTFOLIO-LEVEL COSTS TOTAL	\$43,374,996	\$41,601,132	\$41,917,642	\$43,874,382	\$170,768,152

Key Budget Highlights

- Each proposed annual budget is set in accordance with Section 8-103B(m).
- The EM&V component is set at 3% of the total portfolio budget, which is the maximum amount permitted by Section 8-103B.
- 85% of ComEd’s budget is directly tied to program implementation.

Portfolio Evaluation

Evaluation Overview

The objective of any portfolio evaluation is multi-faceted. Evaluation efforts ideally should support the program administrator’s continuous improvement process by identifying the program’s actual performance, showing how this performance differs from the planned performance, and identifying opportunities to improve the processes employed to deliver, incent, market, and track program performance over time.

Effective evaluation efforts are used to guide forward-looking program management decisions and generally are classified in the following categories:

- **Impact evaluation** – determination of program savings and cost-effectiveness

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- **Process evaluation** – assessments of the effect of program structure and how program design, delivery, marketing, and tracking affect program performance
 - **Verification** – determination of the program participants' compliance with program terms and of actual project savings for purposes of paying incentives
 - **Research** – conducting and/or evaluating research based upon Illinois TRM update priorities and other stakeholder priorities

Energy Savings Calculation

Energy savings. The key measurement, or outcome, of an energy efficiency program is its energy savings. Per Section 8-103B, ComEd's annual energy savings goals will be based on CPAS. CPAS means the total electric energy savings in a given year from measures installed in that year or in previous years, but no earlier than January 1, 2012, that are still operational and providing savings in that year because the measures have not yet reached the end of their useful lives. See 220 ILCS 5/8-103B(b). Portfolio-level CPAS will be calculated annually, with two primary metrics representing savings at either the gross or net level, as defined below.

- **Gross savings** represent the energy or peak demand reduction calculated as the product of the number of measures installed and each respective measure's verified energy or peak demand reduction.
- **Net savings** begin with the estimate of gross savings, and then adjust this estimate in an attempt to calculate the level of savings that is directly attributable to the program.

The difference between gross and net savings (“NTG Ratio”) is accounted for by two factors:

- **Free riders** are those customers who took advantage of incentives to install specific energy efficiency measures but would have installed the measures even in the absence of the incentive.
- **Spillover** represents savings due to customers who were motivated to install measures because of the program but who did not actually receive an incentive.

Gross savings are estimated using well-understood and accepted methods for measuring per measure savings and for statistically estimating the number of such measures actually installed. Calculations of net savings require that estimates of free riders and spillover be developed, and the evaluation community uses a variety of methods to produce these estimates.

The annual calculation of portfolio-level CPAS will include all eligible measures as defined by Section 8-103B. For prescriptive measures, measure-level net savings will be determined at the time of installation using the IL-TRM and NTG Ratios in effect on that date. Savings are subject to EM&V, but otherwise not adjusted retrospectively. For most measure-level savings, savings will be included in CPAS calculations for the lifetime of the measure, as defined by the effective useful life (“EUL”) within the IL-TRM, and retired or removed from the CPAS calculation at the conclusion of the effective useful life. For measures that have a baseline shift during their effective useful life, as indicated in the IL-TRM that was effective at the time of installation, the baseline shift

applies (either reducing or eliminating persisting measure-level savings) at the time after installation specified in the applicable IL-TRM.

For non-prescriptive measures, measure-level, or project-level net savings, which includes building-level, project-level, and customer-level net savings, will be determined at the completion and approval of the impact evaluation(s) establishing the program savings. If the independent evaluator identifies any custom measure- or project-specific variance to what was originally estimated by the program administrator, the independent evaluator's savings for the specific measure (or project) will be used. If the independent evaluator identifies any program level variance as an overall program realization rate, then all custom measures in the program for that program year will be adjusted by the program-level realization rate to determine measure- (or project-) specific savings. Savings and custom calculation inputs are subject to evaluation as detailed in the IL-TRM Policy Document, Section 3.3. Most measure-level or project-level net savings shall be included in CPAS calculations for the lifetime of the measure or project, as defined by the EUL established within the impact evaluation (or custom calculation if the evaluation finds no variance), and retired or removed from the CPAS calculation at the conclusion of the EUL. For those measure-level or project-level savings that have a baseline shift, as established within the impact evaluation (or custom calculation, if the evaluation finds no variance), an adjustment will be applied at the appropriate time to modify or eliminate the persisting savings.

Non-Electric Energy Savings Calculations

Electric utilities subject to Section 8-103B may count savings of fuels other than electricity, which shall be converted to electric savings on an equivalent Btu basis for the premises, and may recover the costs of offering the gas energy efficiency measures, as defined by Section 8-103B(b-25). The electric utility must prioritize programs for low-income residential customers to the extent practicable. Section 8-103B(b-25) also states, "In no event shall more than 10% of each year's applicable annual incremental goal as defined in paragraph (7) of subsection (g) of this Section be met through savings of fuels other than electricity." 220 ILCS 5/8-103B(b-25).

TABLE 17 - CPAS CONVERTED THERMS FOR SELECT PROGRAMS

Programs	2018 CPAS Converted MWh	2019 CPAS Converted MWh	2021 CPAS Converted MWh	2022 CPAS Converted MWh	4-Year CPAS Converted MWh
Income Eligible - EE Programs					
Single Family Retrofits – IE*	10,241	20,482	30,463	40,444	40,444
Multi Family Retrofits – IE*	14,617	29,234	43,795	58,275	58,275
INCOME ELIGIBLE TOTAL	24,858	49,716	74,258	98,719	98,719
Residential - EE Programs					
Appliance Rebates*	103,157	220,162	348,384	484,534	484,534
Single-Family Assessments*	2,864	5,729	7,922	10,116	10,116
Residential HVAC & Weatherization*	949	1,897	2,846	3,795	3,795
Elementary Education*	2,576	5,152	7,517	9,882	9,882
RESIDENTIAL TOTAL	109,546	232,940	366,670	508,326	508,326
THERM CONVERSION TOTAL	134,404	282,656	440,928	607,045	607,045
THERM CONVERSION LIMIT	94,423	196,714	299,006	409,166	409,166
TOTAL COMED EE (LIMIT APPLIED)	94,423	196,714	299,006	409,166	409,166

* Denotes that the program contributes to electricity savings converted from therms

The conversion of gas therm savings to kWh will be calculated as 29.31 kWh per therm and 3412 Btu per kWh. Converted savings shall be counted toward the achievement of the electric utility's annual savings goal, up to 10% of the year's AAIG. If there are gas savings funded with electric customer funds that, when converted, exceed 10% of the

AAIG, then all gas conversions for income-qualified programs must be used first, up to the full amount of gas conversion savings available from income-qualified programs, or the full 10% of the AAIG limit, whichever is less. Gas conversions for non-income-eligible programs can only be counted towards our performance goal after all of the income-eligible gas conversions are made.

Key Evaluation Issues

NTG Framework. For Plan 3, the Commission approved an updated NTG framework for all utilities. This framework has proved to be a highly valuable tool in managing our risk because, in most cases, it institutes a prospective application of revised NTG Ratio values. This is important because it allows us to manage our programs while having certainty regarding the application of one of the key inputs to the net savings calculation. Retroactive application of evaluated net savings creates unmanageable risk and may require a higher level of spending than would otherwise be necessary to ensure goals are achieved. The NTG framework approved in Plan 3 is now embedded in the ICC-approved Policy Manual.

Free Riders / Spillover. The NTG Ratios include a combination of both free riders and spillover, as discussed above. To date, the evaluations have placed much more emphasis on the free rider component, which has been at the expense of considering the spillover effect. As originally proposed in Plan 3, we continue to believe all program evaluations must address, in addition to free-ridership, spillover from both the participant and non-participant perspectives. Without these perspectives, the evaluation is unduly reducing the net program impacts that should be realized by a program. If an

evaluation does not account for spillover, then the free rider effect should also be ignored.

Effective Useful Life. Prior to Section 8-103B, which established annual energy savings goals based on CPAS, EUL was not a factor in the calculation of annual energy savings. Now that EUL is a factor, we believe that EULs contained in the IL-TRM should be reviewed to determine if they need to be updated given existing research. We will work with the independent evaluator and others to support efforts to update EULs in the IL-TRM, and determine EULs to be used in the calculation of CPAS for measures not included in the IL-TRM.

Independent Program Evaluation Contractor

Section 8-103B of the Act requires an annual independent evaluation of the cost-effectiveness of the portfolio, as well as a full review of the multi-year plan results of the broader net program impacts and, to the extent practical, for adjustment of the measures on a going-forward basis as a result of the evaluations. See 220 ILCS 5/8-103B(g)(6). To fulfill this obligation, we have contracted with an independent evaluator to provide all evaluation services. The contract with the independent evaluator provides the Commission with oversight authority that includes the right to:

- Terminate the EM&V contract at any time that the independence of the evaluator has been determined to be compromised;
- Approve or reject any contract between ComEd and the evaluator, in whole or in part;

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- Direct ComEd to terminate the contract if the Commission determines that the evaluator is not acting independently or is unable or unwilling to independently evaluate the energy savings performance and cost-effectiveness of portfolio programs; and
 - Approve any action by ComEd that would result in termination during the term of the contract.

In addition:

- The independent evaluator shall have the sole discretion to develop EM&V program work plans, subject to input and comments from all interested stakeholders and Commission Staff, as described in Policy Manual Version 1.1, Section 10.1.
- The evaluator shall ensure that the data used in its evaluations can be made available to the Commission upon request.

There are also significant changes around the timeline to complete the annual evaluation. Beginning with the evaluation of CY2018, we will be required to submit the energy savings data to the independent evaluator no later than 30 days after the close of the Calendar Year. In turn, the independent evaluator will calculate the CPAS no later than 120 days after the close of the Calendar Year. Finally, because we have proposed to recover our costs through an energy efficiency formula rate, we will submit the evaluator's reports and required information as part of our annual formula rate update filed on or before June 1 of each year.

Evaluation and Performance Adjustments

Additionally, Section 8-103B(g)(7) establishes a new performance adjustment mechanism that increases or decreases the utility's return on equity component of its weighted average cost of capital depending on the extent to which the utility exceeds or falls short of the applicable AAIG for a given Calendar Year. As noted above, the AAIG is the amount of energy savings that ComEd achieved in an individual Calendar Year. See 220 ILCS 5/8-103B(g)(7.5).

In accordance with Section 8-103B, ComEd is proposing Rider EEPA as the tariff mechanism that will calculate any performance adjustment due for the year, which will then be incorporated into ComEd's energy efficiency formula rate, Rider EEPP. To facilitate the calculation of the performance adjustment, ComEd must calculate and identify the adjustment as part of its June 1 annual formula update filing. Because Calendar Year 2018 is the first year that performance will be evaluated, ComEd will first submit this information on or before June 1, 2019.

6. Cost Recovery

Section 8-103B generally requires that electric utilities include with their Plan filing a proposed or revised cost-recovery tariff mechanism, as provided for under Section 8-103B(d), to fund the proposed energy efficiency and demand-response measures and to ensure the recovery of the prudently and reasonably incurred costs of Commission-approved programs. 220 ILCS 5/8-103B(g)(5). Section 8-103B(k), however, permits a utility to file the tariff in advance of the Plan under an accelerated filing and approval option. See 220 ILCS 5/8-103B(g)(5)); see also 220 ILCS 5/8-103B(k)).

ComEd has elected the accelerated filing and approval option, and on June 9, 2017, we filed a petition with the Commission seeking approval of a new energy efficiency formula rate (ComEd's proposed Rider EEPP) under the expedited process described in subsection (k) of Section 8-103B of the PUA. Under this approach, Rider EEPP, together with its first cost inputs, must be approved by the Commission within 75 days after filing, and thereafter take effect no later than 5 days after the Commission's order approving the tariff. 220 ILCS 5/8-103B(k). Because we filed Rider EEPP on June 9, 2017, the tariff will take effect on or before August 28, 2017. As such, we are not again filing the cost recovery mechanism with Plan 5, but rather confirming that we have elected to recover our energy efficiency costs through the energy efficiency formula rate authorized by Section 8-103B.

Moreover, because we elected to file an energy efficiency formula rate tariff as provided by the statute, Section 8-103B(d)(2) also directs that we must include with this Plan

filing “the projected costs to be incurred by the utility during the rate year under the utility’s multi-year plan approved under subsections (f) and (g) of this Section, including, but not limited to, the projected capital investment costs and projected regulatory asset balances with correspondingly updated depreciation and amortization reserves and expense, that shall populate the energy efficiency formula rate and set the initial rates under the formula. The initial rates shall take effect beginning with the January monthly billing period following the Commission’s approval.” 220 ILCS 5/8-103B(d)(2).

Consistent with this statutory provision and our proposed Rider EEPP, our filing identifies the projected energy efficiency costs to be incurred under Plan 5 during Calendar Year 2018, which serve as the cost inputs to our energy efficiency formula rate, Rider EEPP, and establish the energy efficiency revenue requirement for 2018.