Appendix A

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
EBCX programs with capital improvements						
Ameren Illinois Retro-Commissioning Initiative	15 - 30%	Building must be 20,000 to 100,000 sq ft of conditioned space for RCx Lite program. Larger buildings with 100,000 sq ft or more can participate in Large Facilities RCx program	Modifications to optimize lighting and HVAC system operations, redeployment of inoperable dampers and controls, and adjustment of operating schedules and setpoints. In addition to no- and low-cost improvements it includes a roadmap of opportunities for capital improvement projects to be implemented via the custom program.	9 projects in 2020	Verified net savings of 3,725 MWh, 0.25 MW, and 54,441 therms in 2020	$2.01 million in 2020
BC Hydro Continuous Optimization program	5 -15%	Buildings must be at least 50,000 sq ft	Operational savings measures such as recommissioning of building and installation of specialized energy management information software which includes meters, sensors, and controls, delivering the data to one central location, analysis in the cloud, and optimization opportunities to reduce energy use.	493 buildings completed implementation phase (projects until June 2020)	4.7% average electricity savings (% kWh); 9.6% fuel savings (%GJ)	

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
ComEd Retro-Commissioning programs (RCx, MBCx, and Virtual commissioning VCx)	5- 15%	Building can be any size; annual energy usage must be >0.5 GWh and peak demand must be 100 kW to 10 MW for RCx option and <500 kW for VCx	No-and low-cost operational improvements to energy-using systems, Software monitoring equipment to monitor building performance data. RCx for grocery store includes recommendations for equipment upgrades and available incentives.	132 projects in 2020	Net electric savings of 26,840,963 kWh. Net gas savings converted to electric savings 3,291,555 kWh (2020 data)	$8.3 million (in 2019)
Consumers Energy Retro-Commissioning Programs	15% or more	Buildings > 15,000 sq ft (RCx Defined Action option)	Benchmarking and analysis of the building's efficiency. The RCx analysis helps identify no-cost or low-cost improvements such as optimizing air-handler and economizer performance, calibrating controls, adjusting variable frequency drives and pumps, resetting supply air temperature and chilled water supply temperature. It includes recommendations for more extensive measures that can provide deeper savings and qualify for rebates.	9 projects in 2018	433 MWh and 23,674 Mcf (2018 data)	

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Efficiency Maine Long Term Care Building Tune-up Pilot	5-10%	Medium and small businesses that typically do not participate in RCx programs but have available operational savings. Also open to newer buildings with energy management controls systems	Optimizing, scheduling, commissioning, and calibration of controls. Capital measures identified as part of the pilot are eligible to participate through other Efficiency Maine programs.	10 long-term care facilities, including nursing homes and assisted living for the elderly		
Puget Sound Energy Existing Building Commissioning program	10-15%	Building with 50,000 sq ft or more of conditioned space, should be 75% occupied, and managed by automated controls	Energy use and system assessment with recommendations for low- and no-cost O&M improvements. Typical measures include building tune-ups and recommissioning of controls. Capital measures are identified that are eligible to participate through other programs. O&M staff receive hands-on training and a guide to maintain efficiency.	35 projects over the last 5 years	Aggregate savings of 14,819,000 kWh and 132,000 therms	
Puget Sound Energy Multifamily Retrofit	Calculated for each individual project	Multifamily building with at least 5 attached residential units	Low-cost and no-cost energy and water saving upgrades such as central HVAC, water heating RCX, and direct-install replacement measures (advanced power	39,415 in 2017	20.5 MW, 139,000 therms combined	14.6 million (in 2017)

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
			strips, tub spout and shower heads). Program helps identify the most cost-effective capital improvements and enables customers to receive bids from contractor alliance network members.		savings (2017)	
Seattle City Light Existing Building Commissioning program	Calculated for each individual project	Building with 50,000 sq ft or more of conditioned space, 75% occupancy year round, and direct digital controls	RCx processes which enable implementation of low-cost building upgrades and MBCx that leverages EMIS technology and fault detection and diagnostic software to Cx the BAS. Includes recommendations for capital improvement eligible for utility incentives.			
Southern California Edison Retrocommissioning program	Up to 15%	Building must be at least 25,000 sq ft of conditioned space with direct digital control system and central mechanical equipment	HVAC, lighting, domestic hot water, refrigeration, miscellaneous pumps. The Cx provider may direct the owner to SCE's Customized and Express Solutions offering to complete capital improvement retrofits.		999,169 Net kWh savings (Year to date savings from 2018)	$867,653 (2018); $50,662 administrative cost
Custom programs						

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Baltimore Gas and Electric Energy Solutions for Business - Comprehensive Systems	Calculated for each individual project	Any size commercial building in the BGE service territory	Chiller replacements, RCx, and O&M measures, and lighting upgrades. Program participants must include a minimum of 3 measures that provide substantial energy savings and reduce chiller load. A chiller upgrade must be accompanied with lighting upgrades.		48,686 MWh annualized energy savings from custom programs in 2019.	8.06 million (in 2019)
Commonwealth Edison Company Comprehensive Energy Savings program	10-15%	Private and public sector buildings, including K-12 schools.	Lighting, HVAC (advanced rooftop unit controls, chiller/rooftop unit/geothermal, and VSD on primary fans or pumps); compressor with integrated VSD; refrigeration; other efficient equipment (air-side economizer, commercial kitchen equipment, fume hood, Lab filters).			$2 - $4 million for additional incentives costs
Consumers Energy Multifamily Program	Calculated for each individual project	Buildings with three or more apartment units	Direct installation measures (lighting, aerators, showerheads, pipe wrap, and thermostats), and comprehensive retrofit projects (lighting controls, furnaces and boilers, insulation, windows, air-conditioning, and water heating).	35,848 electric housing units served; 68,159 gas housing units served in 2019	9,367,000 kWh electric savings; 2,167,282. therms gas savings in 2019	$4.4 million electric spending and $2.47 million gas spending in 2019

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Consolidated Edison Custom Measures Performance-Based Incentives	Calculated for each individual project	Building must average 100 kW peak demand over 12 months	Upgrades to HVAC, lighting, refrigeration, boiler, chiller, building envelope, and demand-controlled ventilation.			
Consolidated Edison Multifamily Energy Efficiency Program Incentives	Calculated for each individual project	Building must have at least five residential units	In-unit direct install measure such as faucet aerators and energy conservation measures in common area. Participants can make capital improvements, including two comprehensive package of measures - 1) repair and weather sealing of louver vents, exterior doors, common area windows, and perimeter of the basement 2) two-pipe RCx with the designing and installing of air vents on all main pipes, thermostatic radiator values on radiator, clean and tune boilers and burner, and steam trap repair.		Verified gross energy savings in 2021 of 23,072 MMBtu electric savings; 173,069 MMBtu gas savings	$ 7,186,822 electric expenditure; $ 7,575,249 gas expenditure in 2021

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Energize Connecticut Multifamily Initiative		Apartment buildings and complexes, condominiums and co-operatives, senior housing, and mixed-use residential and commercial properties	Project must have two or more measures from different end uses (i.e., lighting, heating, cooling, appliances, DHW). Includes direct install measures, appliances, building envelope, HVAC, and HVAC and lighting control measures. No one end use can exceed 85% of the project's value based on annual savings		5,720,316 kWh in 2019	$2.8 million in 2019
Georgia Power Home Energy Improvement Program	25%	Participating program contractor must achieve at least 25% kWh reduction using a program approved modeling software	Energy assessment followed by installation of multiple prescriptive improvements	1,801 electric housing units served in 2019	Electric savings of 5,172,562 kWh in 2019	$8.4 million (2019 data for single-family and multifamily upgrades)
Los Angeles Department of Water and Power Custom Performance Program (CPP)	Calculated for each individual project	No minimum building size requirement	Installation of high efficiency cooling equipment, variable speed drivers, carbon monoxide monitoring systems, RCX measures, envelope, lighting and controls, and thermal energy storage		32,900,154 kWh (Net annual energy savings); 4,847 kW Net coincident	$3.9 million in 2018

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
					peak savings in 2018	
Mass Save Custom Upgrade Projects	Calculated for each individual project	Commercial, industrial, municipal, educational, and institutional customers making qualifying efficiency upgrades and retrofits to their buildings	Includes lighting upgrades, HVAC, water heating measures, demand control ventilation, pumping systems, chillers, boilers, solar thermal systems, building envelope, insulation and weatherization, window systems, energy management systems, variable speed drives, and combined heat and power (CHP).	89 projects in 2020	276,978 MWh annual electric savings; 618,428 therms gas savings in 2020	
Mass Save Multi-Family Program	5%	Multifamily buildings must have at least 5 residential units	Air sealing, ENERGY STAR lighting, insulation, HVAC system upgrades and controls, water heating equipment, pipe insulation; high-efficiency shower heads; high-efficiency faucet aerators, programmable thermostats, and other energy improvements customized on a site-specific basis.			
National Grid Existing Building Retrofit program	Calculated for each individual project	No minimum requirement	Capital measures including motors and motor-driven systems, HVAC and lighting, upgrades, and energy management systems	1,032 participants in 2018	131,441 MWh annual savings; 17,184 kW	$37 million in 2018

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
					savings (Relf et al. 2020)	
Southern California Gas Company Multifamily Whole Building Program	5% whole building savings	Multifamily buildings that have at least 3 residential units	HVAC system upgrades including new space heating equipment (boiler or furnace), new domestic water heater equipment, installation of smart thermostats, or envelope improvements (windows, attic, wall, floor insulation). Requires customers to install a minimum of three measures, one of which must be a major capital improvement.			
Xcel Energy and CenterPoint Energy Multifamily Building Efficiency	15%	Multifamily building with five or more units with common areas and in-unit kitchen	No-cost installation of energy-saving products, such as LEDs, faucet aerators, and showerheads, throughout common areas and units. If eligible, participants can choose to complete whole building capital improvement measures through the tiered incentive program component.	In its first year (2016), 70 buildings (3,930 units), including 16 that qualified as low-income. In 2017, 640 units served.	7,421 MMBtu (Xcel Energy) and 1,351 MMBtu (CenterPoint Energy) annual savings in 2017.	$656,606 total electricity and $280,740 total natural gas in 2017
Xcel Energy Small Business	Calculated for each	Small to midsized business customer with	Customers under 100 kW peak demand are eligible to receive direct installation of	Launched in 2021		

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Energy Solutions	individual project	a peak demand of 400 kW or less	free energy-saving products such as, high-efficiency LED lighting, energy-efficient showerheads, kitchen and bathroom aerators, pipe insulation and recommendations for energy-saving equipment upgrades.			
Performance-based programs						
Efficiency Vermont Deep Energy Retrofit	50% or more	Commercial, industrial, or mixed use (commercial/multi-family) spaces 5,000 square feet or greater, in use or occupied for one full year	Weatherization measures including wall and attic insulation, window upgrades, and other capital measures like LED lighting, heat pumps, boiler controls, and behavioral measures.	4 projects in Round 1 (2015); 13 projects in Round 2 (2016)		
Energy Trust of Oregon Pay for Performance Pilot	10 to 15% (kWh or therm equivalent)	Commercial buildings (offices, retail, medical office, and grocery) with a minimum of 20,000 sq ft of conditioned floor area.	Capital (including building retrofits and equipment upgrades), operational, maintenance, and behavior measures.	One customer in Phase 1, six customers in Phase 2, (CEE 2018)		
Eversource Residential	Calculated for each	Smaller multi-unit buildings with 3 stories	Cost-effective upgrades with a focus on weatherization, HVAC, and home energy	11,355 electric housing units	5,720,316 kWh electric	$2.8 million electric

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Coordinated Delivery	individual project	or less, and larger multi-unit buildings with four stories or more, or with a centralized heating system	efficiency upgrades. Includes envelope insulation, air sealing, duct sealing, heating, cooling, lighting controls, water-saving devices, and water heating equipment.	served; 3,370 gas housing units served in 2019.	savings; 275,296 therms gas savings in 2019.	spending; $2.6 million gas spending in 2019.
New Jersey Clean Energy Program P4P Existing Buildings	15-20%	Commercial, industrial, and institutional buildings with a peak demand over 200 kW for any of the preceding 12 months, including hotels and casinos, large offices, supermarkets, manufacturing facilities schools, shopping malls and restaurants.	Fuel-neutral scopes of work addressing at least two distinct measures in lighting and HVAC (chiller replacement). In the efficiency package lighting upgrades cannot contribute more than 50% of the savings and some measures like RCX and on-site renewables are excluded.	850 projects till 2021	19,087 MWh of electric savings and 64,118 MMBtu of gas and other fuel savings in 2019-2020 (NJCEP 2020)	$6 - $8 million incentives cost. $1 - 1.5 million administration and program development
NYSERDA Multifamily Performance Program (MPP)	20% or more	Multifamily, residential buildings with at least 5 units. Customer must pay into the New York State System Benefits Charge fund.	Energy audit followed by capital improvements. Eligible measures include air source heat pumps, geothermal systems, heating system upgrades, and on-site generation improvements (cogeneration, photovoltaics).		Average achieved savings of 23%	

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Pacific Gas and Electric Multifamily Home Upgrade program	10-50%	Multifamily buildings with 5 or more units, including affordable, mixed income, and market rate, who can reach 10% modeled energy savings.	Upgrades in two or more unique measures categories – HVAC (heating, cooling, fans); building envelope (windows, insulation, and cool roofs); hot water (boilers, pumps, and controls, and low-flow fixtures); and lighting and appliances (interior lighting, exterior lighting, kitchen appliances, and laundry appliances).	3,322 electric housing units served; 3,594 gas housing units served in 2019	3,577,500 kWh electric savings; Gas savings of 104,614 therms in 2019	$6.3 million spending for both electric and gas in 2019
City of Palo Alto Utilities and Enovity – Pay for Performance Efficiency program	Calculated for each individual project	Businesses and schools	Optimization of existing equipment and systems and capital-intensive improvements.		35 million kWh since 2009, equivalent to $3.5 million in utility cost savings	
Puget Sound Energy Pay for Performance Program	15% savings required from capital improvements	Building must be at least 75% occupied and have more than 50,000 conditioned square footage OR use significantly more energy than a typical	Capital, operational and maintenance improvements, and behavioral measures. Customers must pursue two or more capital measures in one year.	9 projects under contract	Savings goal of 1 million kWh and 1,500 therms	

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
		office building. Building must have a interval-ready meter.				
Rocky Mountain Power, Utah Multifamily Custom Energy Efficiency Program	At least 50% for low-income-qualified properties	Market rate and low-income multifamily properties with four or more units	Bundles of energy efficiency measures including lighting, HVAC, building shell, appliances, weatherization, and water heating.	37 multifamily properties in 2018 and 217 properties in 2019.	2,154 MWh savings (2018) and 4,702MWh savings (2019). Low-income properties accounted for over 50% of savings in 2018 and 43% of savings in 2019.	
Seattle City Light Deep Retrofit Pay for Performance	15-20% in large buildings (15% required	Buildings 50,000 square feet or more with steady consumption and symmetrical occupancy profile.	Capital equipment improvements such as upgrades to HVAC, lighting, envelope systems as well as operations, maintenance, and behavioral measures.	6 projects (3 from 2019 and 3 new)	7000 kWh in electric savings	

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
	from capital improvements)	Buildings less than 50,000 square feet may be eligible if they have high energy use and access to hourly or 15-minute interval energy data at the building level.	Seattle City Light also provides financial and technical support.			
New Jersey Clean Energy Program Energy Savings Improvement Program (ESIP)	Calculated for each individual project	Government buildings including schools, municipal and state government buildings.	Deep capital energy conservation measures including major HVAC, minor HVAC, onsite generation, and facility improvements.			
General Service Administration National Deep Energy Retrofit program	40% energy use reduction	Federal Buildings	Deep energy conservation measures to move buildings towards net zero energy consumption. Includes envelope measures, lighting upgrades, roof replacement and insulation, controls upgrade, HVAC improvements, and water conservation measures.	23 buildings (round 1)	Average energy savings of 38.2%; shorter project award time of 15.9 months	

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Seattle City Light Energy Efficiency as a Service	At least 25% compared to the building's baseline	Commercial buildings with conditioned floor area greater than 50,000 sq ft.	Deep capital energy conservation measures including lighting and HVAC upgrades, and other behavioral, O&M improvements.	Program launched in 2021		
Southern Company Technology Subscription	25-40%	No minimum requirement	Installation and optimization of controls, other covered measures include lighting, HVAC & mechanical, energy storage; smart thermostats; fans; electric vehicles; EV charging stations, and refrigeration. Ongoing maintenance and repairs are also offered under the subscription.			
Programs based on energy consumption patterns						
AEP Ohio Continuous Energy Improvement Program	Varies	Commercial buildings that consume at least 3 million kWh each year (includes offices, colleges, hospitals, manufacturing facility)	Leak repair on compressor systems, turning equipment off during idle periods, scheduling optimization for operational equipment, temperature set-point reductions.	38 customers in 2015; 52 customers in 2016; 22 customers in 2017	25,000 MWh average electric savings in 2017	$1.8 million in 2017
Ameren Illinois Strategic	Varies	Buildings with annual energy consumption of	Measures include modification of operating practices, turning off lights,	18 customers served	1.6 MkWh (direct	

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Energy Management		more than 4 million kWh or 130,000 therm.	shutting-down equipment and other behavioral measures. There are opportunities to identify capital measures.	between 2015 and 2017	results) 64,619,471 kWh (indirect savings)	
BC Hydro Strategic Energy Management: Commercial	Varies	Available to commercial, government and institutional customers	Operational and maintenance measures, upgrade to efficient equipment, and implement Real Time Energy Management (RTEM) software.	550 Buildings served during Round 1	Average 7.2% reduction in total energy consumption	
Duke Energy Smart Saver Performance	10-20%	Building projects that are not a good fit for the conventional custom program. The customer must agree to participate in the measurement plans and agree to the incentive payment plan.	Capital and operational measures including upgrades to lighting, HVAC, building envelope, building insulation, air compressors, and chiller. The program even offers incentives for innovative technologies involving network controls.	31 projects at 226 site (CEE 2018)		Close to $2 million
DC Sustainable Energy Utility Pay for Performance	More than 5%	Commercial and institutional buildings larger than 100,000 square feet, planning, or are undergoing	RCx, advanced building controls, building automation systems, duct sealing, envelope improvements, pneumatic to		Annual target savings exceed 100,000 kWh	

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
		complex, multi-measure, behavioral, and/or operational changes. Must have available metered data (e.g., 15-minute interval electric data)	digital control, and multiple interactive measures		of electricity or 500 MMBtu of natural gas	
Energy Trust of Oregon Commercial Strategic Energy Management	5-20%	Existing commercial and institutional buildings	Behavioral changes, operational improvements, and capital upgrades. Participants receive guidance from energy coaches and benefit from peer-to-peer engagement.	78 customers with a total of 470 buildings (282 sites in 2019)	Annual energy savings of 12.9 million kWh and 600,000 therms.	
PG&E Commercial and Public Sector Whole Building Performance Based Retrofit Program Offering	15%	Building size must exceed 50,000 square feet and have building level metering	Includes behavioral, RCx, and operational (BRO) and capital measures. A minimum of one retrofit measure with a payback of 5 years or more must be part of the project.	15 projects in various stages of the program		

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Puget Sound Energy Commercial Strategic Energy Management	10-15%	Building owners must have a portfolio of buildings with energy use greater than 1,000,000 kWh or 135,000 therms (or a combination of both) annually	Operational, maintenance, and behavioral measures. There are opportunities for staff training and reimbursement for software installation.	44 customers in 2015; 48 customers in 2016; 49 customers in 2017	12,962 MWh (14 million kWh); 676,636 therms of savings in 2017	
Consolidated Edison and NYSERDA joint-Business Energy Pro A Pay for Performance pilot	30% or more	Small and medium businesses and multifamily common spaces in buildings with 2-4 residential units. Buildings must have average annual electric peak demand of less than 300 kW, with active accounts with AMI installed and actively used for billing	Diverse energy efficiency improvements, such as equipment upgrades, building retrofits, and behavioral, operational, and retro-commissioning.	Program in planning phase		$56 million over the course of three phases
Southern California Edison Public	10%	Public sector buildings 30 years or older, 40,000 sq ft or more.	Behavioral, RCx, and operational efficiency measures. Comprehensive	Multiple buildings in the University	Program estimated to achieve	

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Sector Performance-based Retrofit High-Opportunity Program		Building should have system-level control for HVAC and other processes; have majority space conditioned, include a lab space.	technical and design assistance may also be provided.	of California System	11,517,453 kWh and reduce 1,621 kW over four years (CEE 2018)	
Southern California Edison and Southern California Gas Company Continuous Energy Improvement	Varies	Existing building customer of both the utilities and willing to commit financial and human resources to the program.	Identifies energy management opportunities using conservation, operations and maintenance, time-of-use management, energy efficiency, demand response, and self-generation. The program leverages other utility incentive programs and helps build strategies to raise employee awareness and train staff.			
Xcel Energy Strategic Energy Management	Varies	Minimum of 1 GWh or 4,000 dekatherms of conservation potential (approximately 10% of total energy use)	Capital equipment improvements for energy efficiency, RCx, and system-level operational change as well as cultural change from customers' management team		37,580,929 kWh and 5,102 kW in 2020	4.3 million electric budget in 2020
Certification and voluntary standards						

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Consumers Energy Zero Net Energy program	25 kBtu / square foot/year or, 30% energy reduction compared to existing energy use	Commercial building undergoing a deep retrofit upgrading a minimum of two-whole building energy systems	Energy conservation measures including operational controls, envelop upgrade, plug and process load management, energy management systems, high-efficiency HVAC equipment, and renewable energy resources.			
Louisville Gas and Electric and Kentucky Utility Business Rebate program (existing building rebates)	Varies	Commercial and industrial customers who have been paying into the DSM mechanism	Rebates for energy efficiency upgrades based on points awarded under the LEED v4 certification and are calculated based on the points earned in Energy and Atmosphere – Optimize Energy Performance, Advanced Energy Metering, and Demand Response categories and square footage of the building.			
Potomac Edison (Maryland) Custom –	Varies	Commercial, industrial, and government buildings that do not	Incentives offered for LEED-certified buildings, renovations, and additions, building shell improvement, equipment upgrades, and building improvements			

Program	Targeted savings	Minimum program requirements	Eligible efficiency measures	Participation	Program savings	Program spending
Building Improvements		qualify for existing programs	that reduce energy consumption and demand.			