Appendix C: Measure Bundling

Appendix C shows how measures were bundled into programs. Below is a table showing two columns, the first is the program name, and the second shows which measures are included in that program. The table shows only the measures that passed the total resource cost test with a cost benefit ratio greater than one.

Program	Efficient Technology
Appliance Recycling Program	Freezer Recycling
	Refrigerator Recycling
	Window AC - efficient
C&I Custom	Custom Lighting
C&I New Construction	New Construction Upgrades from ASHRAE 90.1-1999
	New Construction Upgrades from ASHRAE 90.1-2004
C&I Prescriptive	50W Metal Halide
	T8 32W Dimming EI Ballast
	100W Metal Halide
	13 Watt Integral CFL
	13 Watt Modular CFL
	14 Watt Integral CFL
	14 Watt Modular CFL
	15 Watt Integral CFL
	15 Watt Modular CFL
	16 Watt Integral CFL
	16 Watt Modular CFL
	18 Watt Integral CFL
	18 Watt Modular CFL
	19 Watt Integral CFL
	19 Watt Modular CFL
	20 Watt Integral CFL
	20 Watt Modular CFL
	23 Watt Integral CFL
	23 Watt Modular CFL
	25 Watt Integral CFL
	25 Watt Modular CFL
	26 Watt Integral CFL
	26 Watt Modular CFL
	28 Watt Integral CFL
	28 Watt Modular CFL
	30 Watt Integral CFL
	30 Watt Modular CFL
	36 Watt Integral CFL
	40 Watt Integral CFL
	40 Watt Modular CFL
	55 Watt Modular CFL
	65 Watt Modular CFL
	Addition of a LT subcooler to an air-cooled multiplex
	Air-cooled multiplex system w/extensive refrigeration equipment maintenance
	Ambient following SCT setpoint, 70°F minimum
	Ambient following SCT setpoint, 70°F minimum, variable-spd condenser fan
	Ceiling Mounted Motion Sensor
	Computer Power Management
	Connectionless Steamer
	Cycle fan off with thermostat; duty cycle occasionally when off
	De-lamp from 4', 4 lamp/fixture
	De-lamp from 8', 4 lamp/fixture
	Efficient Air-Cooled 1001-1500 lbs/day
	Efficient Air-Cooled 201-300 lbs/day
	Efficient Air-Cooled 301-400 lbs/day
	Efficient chiller
	Efficient packaged AC
	Electroluminescent Exit Sign (New)
	Electroluminescent Exit Sign Retrofit Kit
	Eliminate anti-sweat heaters from doors

Program	Efficient Technology
C&I Prescriptive	Floating SCT controlled to 70°F Floating SST control on LT and MT suction groups High Bay T5 (4L4' F28T5/HO) High Pressure Sodium 200 W Hot Food Holding Cabinet Install automatic door closer on walk-in freezer doors LED Exit Sign (New) LED Exit Sign Retrofit Kit LED Pedestrian Signal LED Traffic Signal Low Pressure Sodium 180 W Metal Halide 175 W PS Metal Halide 250 W PS Occ-Sensor - Wall box Premium Efficiency Motor - 10 HP Premium Efficiency Motor - 100 HP Premium Efficiency Motor - 15 HP Premium Efficiency Motor - 150 HP Premium Efficiency Motor - 20 HP Premium Efficiency Motor - 200 HP Premium Efficiency Motor - 25 HP Premium Efficiency Motor - 5 HP Premium Efficiency Motor - 50 HP Premium T8 EI Ballast Reduce design SCT by ~5°F and improve efficiency Replace multiplex air-cooled condenser with evaporative condenser Substitute high efficiency motors for standard efficiency Turn off fixture lights when store closed Upgrade from 53 Btu/Watt @ 10°F TD to 85 Btu/Watt Variable speed drive for chilled water loop Variable speed drive for hot water loop VAV box retrofit on constant volume system Vending Machine Controller Wetbulb following SCT setpoint, 70°F minimum Wetbulb following SCT setpoint, 70°F minimum, variable-spd condenser fan 2 4' T8 32 watt lamps with EB 2 4' Super T8 28 watt lamps with EB 1 4' T8 32 watt lamps with EB and reflector 2 4' T8 32 watt lamps with EB with dimming system 2 4' T8 32 watt lamps with EB with occupancy sensors 2 8' T8 59 watt lamps with EB 2 8' Super T8 59 watt lamps with EB 1 8' T8 59 watt lamps with EB and reflector 2 8' T8 59 watt lamps with EB with dimming system 2 8' T8 59 watt lamps with EB with occupancy sensors 2 1-lamp F32T8 with EB and CFL Task Light 2 1-lamp Super T8s with high-power EB
C&I Retrocommissioning	Chilled Water Loop temperature control Dirty Air-cooled condenser coils are cleaned Hot Water Loop temperature control time clocks control packaged system operation
DCEO Lights for Learning	13W capsule 15W CFL 15W CFL daylight 16W CFL reflector 20W CFL 20W CFL daylight 25W CFL
	Lights for Learning CFL
DCEO Low Income Direct Install	12 CFLs at 3 hours per day WindowAir Conditioner - ENERGY STAR

Program	Efficient Technology
DCEO Low Income EE Moderate Rehab (MF)	90% AFUE furnace w/ efficient air handler New Home 6 indoor + 2 outdoor CFLs WindowAir Conditioner - ENERGY STAR
DCEO Low Income New Const. Gut Rehab	Air Conditioner - SEER 14 + Programmable Thermostat New Home 6 indoor + 2 outdoor CFLs
DCEO Public Retrocommissioning	Chilled Water Loop temperature control Dirty Air-cooled condenser coils are cleaned Hot Water Loop temperature control time clocks control packaged system operation
DCEO Public Sector Customized Program	Public Sector Custom - Efficient Technologies
DCEO Public Sector Prescriptive	50W Metal Halide 13 Watt Integral CFL 13 Watt Modular CFL 14 Watt Integral CFL 14 Watt Modular CFL 15 Watt Integral CFL 15 Watt Modular CFL 16 Watt Integral CFL 16 Watt Modular CFL 18 Watt Integral CFL 18 Watt Modular CFL 19 Watt Integral CFL 19 Watt Modular CFL 20 Watt Integral CFL 20 Watt Modular CFL 23 Watt Integral CFL 23 Watt Modular CFL 25 Watt Integral CFL 25 Watt Modular CFL 26 Watt Integral CFL 26 Watt Modular CFL 28 Watt Integral CFL 28 Watt Modular CFL 30 Watt Integral CFL 30 Watt Modular CFL 36 Watt Integral CFL 40 Watt Integral CFL 40 Watt Modular CFL 55 Watt Modular CFL 65 Watt Modular CFL De-lamp from 4', 4 lamp/fixture De-lamp from 8', 4 lamp/fixture Electroluminescent Exit Sign (New) Electroluminescent Exit Sign Retrofit Kit LED Exit Sign (New) LED Exit Sign Retrofit Kit Occ-Sensor - Wall box Premium T8 EI Ballast Variable speed drive for chilled water loop Variable speed drive for hot water loop VAV box retrofit on constant volume system 2 4' Super T8 28 watt lamps with EB 1 4' T8 32 watt lamps with EB and reflector 2 8' Super T8 59 watt lamps with EB
DCEO Single Family Rehab	90% AFUE furnace w/ efficient air handler Air Conditioner - SEER 16 + Programmable Thermostat WindowAir Conditioner - ENERGY STAR
Nature First Expansion	Load control switch
Residential AC Tuneup	Refigeration Charge Reg. (100% SEER value - 10.16 SEER)
Residential Advanced Lighting	New Home Advanced Lighting Package

Program	Efficient Technology
Residential Appliances	Efficient Single Speed Pool Pump Efficient Two Speed Pool Pump Energy Star Clothes Washer - 2.65 cf Energy Star Clothes Washer - 3.5 cf Refrigerator: Bottom Mount Freezer Refrigerator: Top Mount Freezer
Residential Lighting	13 Watt Integral CFL 14 Watt Integral CFL 15 Watt Integral CFL 16 Watt Integral CFL 18 Watt Integral CFL 19 Watt Integral CFL 20 Watt Integral CFL 20W CFL Table Lamp 23 Watt Integral CFL 25 Watt Integral CFL 25W CFL Table Lamp 26 Watt Integral CFL 28 Watt Integral CFL 30 Watt Integral CFL 30W CFL Table Lamp 36 Watt Integral CFL 40 Watt Integral CFL 55 Watt Modular CFL 55W CFL Table Lamp 55W CFL Torchiere 70W CFL Torchiere (two LAMPs) Christmas Lights LED C7 - 25 count Christmas Lights LED C9 - 25 count
Residential Multifamily "All Electric" Sweep	18 Watt Integral CFL DHW wrap R-4 Electroluminescent Exit Sign (New) Electroluminescent Exit Sign Retrofit Kit Faucet aerators LED Exit Sign (New) LED Exit Sign Retrofit Kit Low Flow Shower Heads Occ-Sensor - Wall box 2 4' T8 32 watt lamps with EB 2 4' Super T8 28 watt lamps with EB 1 4' T8 32 watt lamps with EB and reflector 2 4' T8 32 watt lamps with EB with occupancy sensors 2 8' Super T8 59 watt lamps with EB 1 8' T8 59 watt lamps with EB and reflector
Residential New HVAC	14 SEER (11.99 EER) Split-System Air Conditioner Refigeration Charge Reg. (100% SEER value - 10.16 SEER) Sizing (115%)
Single Family Home Performance	DHW wrap R-4 Hot Water Pipe Insulation Low Flow Shower Heads
Small C&I CFL Intro Kit	13 Watt Integral CFL 19 Watt Integral CFL 25 Watt Integral CFL
DCEO Public Sector New Constr	1 LEED Point (11% above code) 2 LEED Points (14% above code) 4 LEED Points (21% above code) 5 LEED Points (25% above code) 7 LEED Points (32% above code) 0 LEED Points (10% above code) 1 LEED Point (15% above code) 2 LEED Points (20% above code) 3 LEED Points (25% above code) 4 LEED Point (30% above code)

Appendix D: Program Documentation

Appendix D contains a listing of each program, including the participation, the costs broken down by incentive, administration, marketing, and implementation, and two verification variables, the realization rate and net-to-gross ratio. The program's total resource cost result is also shown. Sources and a brief explanation of program design and assumptions are included as well.

[illegible]						
	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Participation (Homes)	0	2,000	3,500	5,500		
Participation % of Baseline	0.0%	2.3%	4.1%			Baseline data: ComEd
Incentive Costs	$0	$250,000	$430,000	$680,000		
Admin Costs	$0	$74,000	$130,000	$200,000	30%	LIPA Program Data
Marketing Costs	$0	$74,000	$130,000	$200,000	30%	
Implementation Costs	$0	$170,000	$300,000	$470,000	70%	
Total Non-Incentive Costs	$0	$320,000	$560,000	$880,000		
Total Program Costs	$0	$570,000	$990,000	$1,560,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	1.04					

Notes: The baseline for this program is the number of single family attached and detached homes in the ComEd territory, as provided by ComEd. Participation is based on best practice program data and ComEd program goals (number of homes upgraded). Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are based on program data from Long Island Power Authority, as well as ICF and ComEd discussion. Realization rate of 95% accounts for installations that do not produce expected energy savings, such as improperly applied hot water tank wraps or pipe wraps. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual version 2 (2003).

[illegible]						
	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Participation (Homes)	0	6,500	16,000	23,000		
Participation % of Baseline	0.0%	4.3%	10.6%			Baseline data: ComEd
Incentive Costs	$0	$790,000	$1,970,000	$2,750,000		
Admin Costs	$33,000	$160,000	$390,000	$580,000	20%	Arizona Public Service, E.ON Energy, ICF
Marketing Costs	$33,000	$160,000	$390,000	$580,000	20%	
Implementation Costs	$33,000	$160,000	$390,000	$580,000	20%	
Total Non-Incentive Costs	$100,000	$470,000	$1,180,000	$1,750,000		
Total Program Costs	$100,000	$1,260,000	$3,150,000	$4,510,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	1.17					

Notes: The baseline for this program is the number of homes in the ComEd territory, as provided by ComEd. Participation is based on best practice program data and ComEd program goals (number of improved ACs). Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are based on program data from Arizona Public Service, E.ON Energy, as well as ICF and ComEd discussion. Realization rate of 95% accounts for installations that do not produce expected energy savings, such as units that are not correctly tuned up. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

[illegible]						
	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Participation (Units)	14,000	31,000	41,000	86,000		
Participation % of Baseline	2.0%	4.5%	6.0%			Baseline data: ComEd
Incentive Costs	$660,000	$1,490,000	$1,980,000	$4,130,000		
Admin Costs	$330,000	$740,000	$990,000	$2,060,000	50%	E-Source report (2007) and JACO Industry Data
Marketing Costs	$330,000	$740,000	$990,000	$2,060,000	50%	
Implementation Costs	$790,000	$1,780,000	$2,380,000	$4,950,000	120%	
Total Non-Incentive Costs	$1,450,000	$3,270,000	$4,360,000	$9,080,000		
Total Program Costs	$2,110,000	$4,750,000	$6,340,000	$13,200,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.35 fridges; 0.54 freezers and window A/C units					CA Energy Efficiency Policy Manual & ICF Assumption
Program TRC Result	1.35					

Notes: The baseline for this program is the number of homes in the ComEd territory that are estimated to have secondary refrigerators, freezers, or air conditioning units. Baseline data, the number of single family detached homes, was provided by ComEd, and Midwest Energy Efficiency Alliance provided number of homes with secondary units in Illinois. Participation was based on best practice program data and ComEd program goals (number of units). Costs for administration, marketing, and implementation were based on a percentage of the incentive costs, and were determined an E-Source report (Kolwey, Neil; EDRP-F5, April 2006) conversations with JACO, as well as ICF and ComEd discussion. Realization rate of 95% accounts for removals that do not produce expected energy savings. The net to gross ratios of 35% for second fridges and 54% for second freezers was drawn from the California Energy Efficiency Policy Manual, version 2 (2003). The 54% ratio was also applied to window A/C units, by ICF Assumption.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Participation (CFLs)	2,520,000	4,190,000	4,950,000	11,650,000		
Participation % of Baseline	3.3%	5.5%	6.5%			Baseline data: ComEd
Incentive Costs	$4,860,000	$8,090,000	$9,560,000	$22,510,000		
Admin Costs	$240,000	$400,000	$480,000	$1,130,000	5%	Connecticut Power & Light Program Data
Marketing Costs	$1,120,000	$1,860,000	$2,200,000	$5,180,000	23%	
Implementation Costs	$970,000	$1,620,000	$1,910,000	$4,500,000	20%	
Total Non-Incentive Costs	$2,330,000	$3,880,000	$4,590,000	$10,810,000		
Total Program Costs	$7,190,000	$11,980,000	$14,150,000	$33,320,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	2.90					

Notes: The baseline for this program is the number of homes in the ComEd territory, as provided by ComEd. Participation is based on best practice program data and ComEd program goals (number of CFLs distributed). Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are based on program data from Connecticut Power & Light. Realization rate of 95% accounts for installations that do not produce expected energy savings, such as using CFLs to replace burned out CFLs. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Participation (Homes)	3,300	3,300	3,300	9,900		
Participation % of Baseline	3.0%	3.0%	3.0%			Baseline data: ComEd
Incentive Costs	$350,000	$350,000	$350,000	$1,040,000		
Admin Costs	$140,000	$140,000	$140,000	$410,000	40%	ICF, ComEd
Marketing Costs	$140,000	$140,000	$140,000	$410,000	40%	
Implementation Costs	$140,000	$140,000	$140,000	$410,000	40%	
Total Non-Incentive Costs	$410,000	$410,000	$410,000	$1,240,000		
Total Program Costs	$760,000	$760,000	$760,000	$2,280,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	1.33					

Notes: The baseline for this program is the number of all electric multifamily units in the ComEd territory, as provided by ComEd. Participation is based on best practice program data and ComEd program goals (number of homes). Costs for administration, marketing, and implementation are based on a percentage of the incentive costs are based on ICF and ComEd discussion. Realization rate of 95% accounts for installations that do not produce expected energy savings, such as improperly applied hot water tank wraps or pipe wraps. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Participation (Units)	0	17,000	44,000	61,000		
Participation % of Baseline	0.0%	11.0%	27.5%			Baseline data: ComEd
Incentive Costs	$0	$2,640,000	$6,580,000	$9,220,000		
Admin Costs	$0	$530,000	$1,320,000	$1,840,000	20%	LIPA Program Data
Marketing Costs	$0	$530,000	$1,320,000	$1,840,000	20%	
Implementation Costs	$0	$790,000	$1,970,000	$2,770,000	30%	
Total Non-Incentive Costs	$0	$1,850,000	$4,610,000	$6,450,000		
Total Program Costs	$0	$4,480,000	$11,190,000	$15,670,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	1.11					

Notes: The baseline for this program is the number of new air conditioners purchased annually in the ComEd territory, estimated from data provided by ComEd and the American Housing Survey. Participation is based on best practice program data and ComEd program goals (number of units installed). Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are based on program data from Long Island Power Authority , as well as ICF and ComEd discussion. Realization rate of 95% accounts for installations that do not produce expected energy savings, such as units that are not correctly charged or installed. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

Residential Advanced Lighting						
	2008	2009	2010	Total		Source
Participation (Homes)	0	60	130	190		
Participation % of Baseline	0.0%	2.0%	4.0%			Baseline data: ComEd, ICF/EnergyStar
Incentive Costs	$0	$8,300	$17,000	$25,000		
Admin Costs	$0	$6,200	$12,000	$19,000	75%	Xcel Energy and WE Energies Program Data
Marketing Costs	$0	$6,200	$12,000	$19,000	75%	
Implementation Costs	$0	$8,300	$17,000	$25,000	100%	
Total Non-Incentive Costs	$0	$21,000	$41,000	$62,000		
Total Program Costs	$0	$29,000	$58,000	$87,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	1.11					

Notes: The baseline for this program is the number of new homes in the ComEd territory, provided by ComEd and information from ICF and the Energy Star New Homes Program that new home construction is 0.14% of the number of existing homes. Participation is based on best practice program data and ComEd program goals (number of homes). Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are based on program data from Xcel Energy and WE Energy. Realization rate of 95% accounts for installations that do not produce the expected energy savings, for instance where CFLs might be replaced with traditional bulb. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

Natural Gas Equipment						
	2008	2009	2010	Total		Source
Participation (Homes)	8,100	7,700	6,900	23,000		
Participation % of Baseline	0.4%	0.4%	0.3%			Baseline data: ComEd
Incentive Costs						
Admin Costs						ComEd
Marketing Costs						
Implementation Costs						
Total Non-Incentive Costs						
Total Program Costs	$790,000	$990,000	$1,180,000	$2,960,000		
Realization Rate	1					ComEd
Net-to-Gross Ratio	1					ComEd
Program TRC Result	1.05					

Notes: All program info is provided directly by Comed.

CFL Coupon Program						
	2008	2009	2010	Total		Source
Participation (Units)	120,000	240,000	390,000	740,000		
Participation % of Baseline	2.0%	4.0%	7.8%			Baseline data: KEMA
Incentive Costs	$4,650,000	$9,300,000	$18,020,000	$31,970,000		
Admin Costs	$460,000	$930,000	$1,800,000	$3,200,000	10%	California Statewide, Nevada Power, and WE Energies Program Data
Marketing Costs	$460,000	$930,000	$1,800,000	$3,200,000	10%	
Implementation Costs	$1,390,000	$2,790,000	$5,410,000	$9,590,000	30%	
Total Non-Incentive Costs	$2,320,000	$4,650,000	$9,010,000	$15,980,000		
Total Program Costs	$6,970,000	$13,950,000	$27,030,000	$47,950,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	1.25					

Notes: The baseline for this program is the number of base efficiency technology installations (such as number of T-12 fixtures, number of inefficient motors, etc.) in the ComEd territory, as estimated from a study by KEMA Colorado, with data weighted by EIA building data for the East North Central region. Participation is based on best practice program data and ComEd program goals (number of units). Incentive costs are set in two ways. For linear flourescent lighting, CFLs, and motors, incentive level was set to specific values based on program data (PG&E, Nevada Power, and WE Energies) and ComEd program design goals. For all other measures, incentive level was calculated to reduce measure payback to 2 years. Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are based on program data from a California Statewide report, Nevada Power, and WE Energies, as well as ICF and ComEd discussion. Realization rate of 95% accounts for installations that do not produce expected energy savings. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Participation (Projects)	50	270	450	760		
Participation % of Baseline	0.4%	2.3%	3.8%			Baseline data: KEMA
Incentive Costs	$220,000	$1,270,000	$2,150,000	$3,640,000		
Admin Costs	$65,000	$380,000	$650,000	$1,090,000	30%	Connecticut Light & Power, ICF
Marketing Costs	$65,000	$380,000	$650,000	$1,090,000	30%	
Implementation Costs	$65,000	$380,000	$650,000	$1,090,000	30%	
Total Non-Incentive Costs	$190,000	$1,150,000	$1,940,000	$3,280,000		
Total Program Costs	$410,000	$2,420,000	$4,090,000	$6,920,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	1.11					

Notes: The baseline for this program is the number of base efficiency technology installations (such as number of air handlers) in the ComEd territory, as estimated from a study by KEMA Colorado, with data weighted by EIA building data for the East North Central region. Participation is based on best practice program data and ComEd program goals (number of units). Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are based on Connecticut Light & Power program data, as well as ICF and ComEd discussion. Realization rate of 95% accounts for installations that do not produce the expected energy savings. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Participation (CFLs)	100,000	0	0	100,000		
Participation % of Baseline	2.6%	0.0%	0.0%			Baseline data: KEMA
Incentive Costs	$400,000	$0	$0	$400,000		
Admin Costs	$120,000	$0	$0	$120,000	30%	ICF Assumption
Marketing Costs	$120,000	$0	$0	$120,000	30%	
Implementation Costs	$120,000	$0	$0	$120,000	30%	
Total Non-Incentive Costs	$360,000	$0	$0	$360,000		
Total Program Costs	$760,000	$0	$0	$760,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	2.07					

Notes: The baseline for this program is the number of CFL installation opportunities in Small C&I buildings in the ComEd territory, as estimated from a study by KEMA Colorado, with data weighted by EIA building data for the East North Central region. Participation is set to reach 100,000 introductory kits delivered. Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are based on ICF assumption. Realization rate of 95% accounts for installations that do not produce the expected energy savings. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Participation (Projects)	110	410	530	1,000		
Participation % of Baseline	0.7%	2.9%	3.7%			Baseline data: ComEd
Incentive Costs	$1,630,000	$6,740,000	$8,660,000	$17,030,000		
Admin Costs	$410,000	$1,690,000	$2,160,000	$4,260,000	25%	WE Energies Program Data
Marketing Costs	$81,000	$340,000	$430,000	$850,000	5%	
Implementation Costs	$410,000	$1,690,000	$2,160,000	$4,260,000	25%	
Total Non-Incentive Costs	$900,000	$3,710,000	$4,760,000	$9,370,000		
Total Program Costs	$2,520,000	$10,450,000	$13,420,000	$26,400,000		
Realization Rate	0.95					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	2.10					

Notes: The baseline for this program is the energy (kWh) consumed in ComEd's territory in 2006, provided by ComEd, and weighted among industrial users using EIA data. Participation is based on best practice program data and ComEd program goals (number of kWh saved). Incentive costs are set to $0.07/kWh, based on program data from Southern California Edison. Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are estimated using WE Energies program data, as well as ICF and ComEd discussion. Realization rate of 95% accounts for installations that do not produce the expected energy savings. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

C&I New Construction						
	2006	2007	2008	Total		Source
Participation (Buildings)	0	7	24	31		
Participation % of Baseline	0.0%	2.5%	8.0%			Baseline data: KEMA
Incentive Costs	$0	$330,000	$1,070,000	$1,410,000		
Admin Costs	$33,000	$50,000	$160,000	$240,000	20%	ICF Assumption
Marketing Costs	$33,000	$50,000	$160,000	$240,000	20%	
Implementation Costs	$33,000	$50,000	$160,000	$240,000	20%	
Total Non-Incentive Costs	$100,000	$150,000	$480,000	$730,000		
Total Program Costs	$100,000	$480,000	$1,550,000	$2,130,000		
Realization Rate	1.0					ICF Assumption
Net-to-Gross Ratio	0.8					CA Energy Efficiency Policy Manual
Program TRC Result	1.06					

Notes: The baseline for this program is the number of new large commercial buildings in the ComEd territory. Participation is based on best practice program data and ComEd program goals (number of buildings). Costs for administration, marketing, and implementation are based on a percentage of the incentive costs, and are based on ICF and ComEd discussion. Realization rate is 100% because the program is designed to work with buildings through an application and inspection process. The net to gross ratio of 80% is drawn from the California Energy Efficiency Policy Manual, version 2 (2003).

Appendix E: Uncertainty Analysis Inputs

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This Appendix documents ICF's methodology for setting the uncertainty distributions used in the risk analysis. The overall approach to the risk analysis is a subject covered in Appendix A. The uncertainties documented in this Appendix are the ones that were used to run the third and final Monte Carlo simulation, the results of which were used in the final analysis of portfolio risk. Ideally, these uncertainty distributions would be based on observations of many actual values. Unfortunately, consistent data sets do not exist that would enable us to base the distributions on observed variation of values for identical programs. Therefore, these distributions were based on subjective evaluation of the relative uncertainty associated with the source of the initial values.

E.1 Overview

As discussed in Appendix A, there were four uncertainties used in the risk analysis of the portfolio: unit energy savings estimates (annual energy use of the efficient technology minus the annual energy use of the baseline technology), projected measure installation counts, program net-to-gross ratios and program engineering verification factors. Uncertainty distributions were estimated using a process that analyzed the key factors contributing to each uncertainty at the program or measure level. Then based on the analysis of these factors, ICF set probability distributions around each uncertainty for every measure in the portfolio. To review, the table below outlines what factors ICF used to analyze each key uncertainty.

Table E-1: Factors used to analyze key portfolio uncertainties

Uncertainty	Factors used to analyze uncertainty
Unit savings	Source of the unit savings estimate (i.e. DEER) and the measure's weather sensitivity.
Projected installations	Program's ability to get measures directly installed (an education program would have a much lower ability to do this than a C&I Custom program, for example), the program participation rate, the source of the baseline measure usage rate (i.e. MEEA, KEMA), and the applicability of the baseline usage rate to the Company's portfolio.
Net-to-gross ratios	Source of the NTGR estimate, the applicability of the NTGR to the Company's program, and the uncertainty around an evaluator's ability to conduct robust impact studies on the program given the evaluation budget.

The engineering verification factor was not considered a key uncertainty because most of the evaluation risk was captured in NTGR uncertainty. ICF used its knowledge of program installation rates to estimate uncertainty around the verification factors used in the Energy Efficiency Potential Model (EEPM).

Whether the uncertainties were set at the program level, then applied to each measure in each program, as was the case with measure installations, NTGR and engineering verification factor uncertainties, or applied directly at the measure level, as was the case with unit energy savings uncertainty, ICF assigned every measure in the portfolio four uncertainties that impacted portfolio kWh savings. The total number of uncertainties used in the risk analysis was 4,792.

E.2 Quantifying portfolio uncertainties

The first step the ICF team took in setting uncertainties was quantifying their confidence in each of the factors inherent to the EEPM that contributed to key uncertainties at the measure or program level. For example, for each program net-to-gross ratio (NTGR) used in the EEPM, ICF asked the following questions:

- How confident are we that the source we used for the NTGR is reliable and accurate?
- How confident are we about the applicability of this NTGR to ComEd's program?
- Given the evaluation budget and the program's structure, how confident are we that an evaluator will be able to conduct robust impact studies?

Confidence in each factor was quantified using a discrete scale, shown in the table below, where 0.1 indicated ICF had no confidence in a factor and a 1 indicated that they had no reason to be uncertain about the factor. Confidence levels were set for lower and upper bounds around each factor.

Table E-2: Uncertainty factor confidence scale

Confidence Value	Description
0.1	not confident
0.5	neither confident, nor "not confident" (best guess)
0.75	confident
0.9	very confident
1	no reason to be uncertain

Once confidence was quantified for each factor contributing to an uncertainty, ICF weighed each factor based on their assessment of each factor's importance in its contribution to the uncertainty. Finally, ICF calculated the uncertainty as one minus the weighted average of their confidence in each factor contributing to the uncertainty. For example, ICF quantified their uncertainty in projected measure installations for the Residential New HVAC Program as shown in the table below.

Table E-3: Example calculation of weighted installation uncertainty

Uncertainty Factor	Lower Bound Confidence	Upper Bound Confidence	Factor Weight
Baseline participation source confidence	0.9	0.9	4
Applicability of baseline source to ComEd's portfolio confidence	0.9	0.9	3
Program ability to install confidence	0.75	0.75	1
Hardwired participation rate confidence	0.9	1	5
Weighted Confidence	**0.89**	**0.93**	
Weighted Uncertainty	**0.11**	**0.07**	

ICF and ComEd estimated, using the EEPM, that the Residential New HVAC program will properly charge with refrigerant 19,753 new residential AC units in detached single family homes over three years. According to ICF's uncertainty analysis, the program may actually charge somewhere between 17,580 and 21,956 (inclusive) new residential AC units over three years.

The factor weights for baseline participation source, applicability of the baseline source and the hardwired participation rate were established based on ICF's professional judgment. These weights did not vary across measures in the portfolio. The weight on the program's ability to install measures was based on the program's projected contribution to overall portfolio energy savings over three years (these weights, by program, are the same weights shown below in

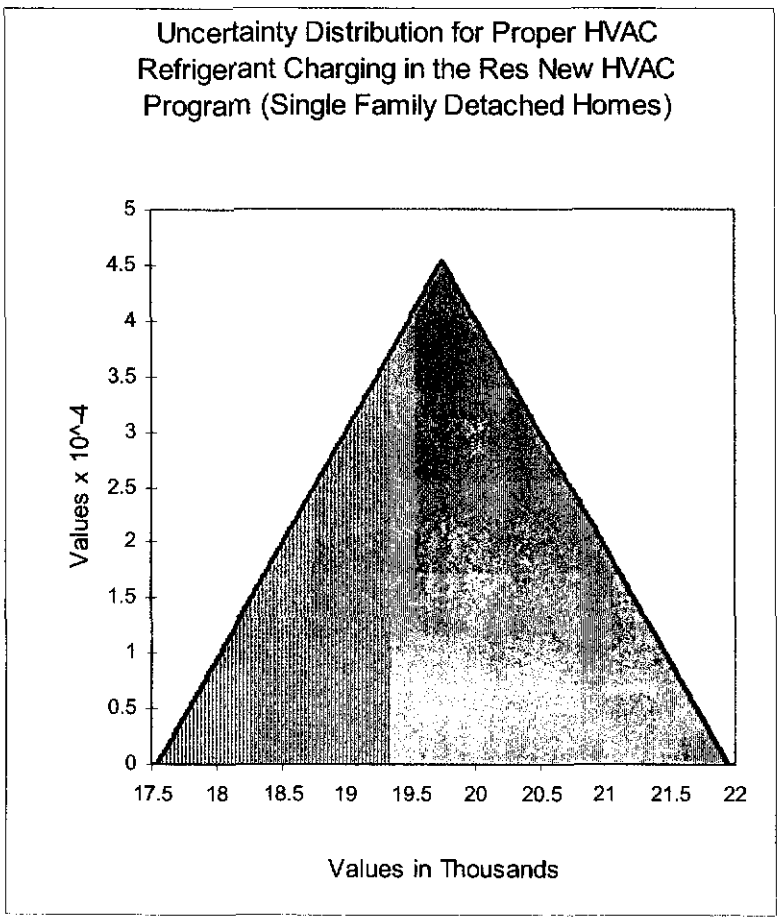
Table 9--"Evaluation Confidence Weight"). In the case of the Residential HVAC Program, this weight is low because the program is projected to contribute a small amount to overall portfolio savings.

Factor weights varied between 0 and 5 in the analysis.

Distribution shapes

ICF used triangular probability distributions for the uncertainties in the risk analysis. The main reason ICF used this distribution shape is that data was not available to support the used of fitted uncertainty distributions, nor did ICF have any evidence that the uncertainties were normally distributed. Triangular distributions are set in @RISK using minimum (lower bound), most likely and maximum (upper bound) values. The probability distribution for proper AC refrigerant charging conducted through the New Residential HVAC program in detached single family homes is illustrated in the picture below. The x-axis shows the range of possible number of charges, where 19,753 is the most likely number of charges, 17,549 is the lower bound and 21,956 is the upper bound. The y-axis is the relative probability that each value on the x-axis will occur.

Figure E-1: Example uncertainty distribution



E.3 Uncertainty documentation

Below, ICF documents the uncertainty factor confidence levels and weights used in calculating weighted uncertainties prior to the final Monte Carlo simulation. As stated in Appendix A, the ICF team went through three rounds of quantifying confidence levels and setting uncertainty distributions.

Unit energy savings

The factors considered in calculating unit energy savings uncertainty were the source of the savings estimate and measure weather sensitivity.

ICF's confidence in the sources of unit energy savings used in the EEPM are shown in the table below.

Table E-4: Unit energy savings source confidence levels

Unit Energy Savings Source	Upper Bound Confidence	Lower Bound Confidence
Database of Energy Efficiency Resources (DEER)	0.9	0.9
Information provided by ComEd team	0.75	0.75
Data and assumptions from ICF	0.75	0.75
ICF's Energy Efficiency Potential Model	0.75	0.75
Environmental Protection Agency and ICF work together on ESTAR Advanced Lighting Package program	0.75	0.75
Fisher Nickel and Food Technology Service Center	0.9	0.9
Department of Commerce and Economic Opportunity of the State of Illinois	0.75	0.75
American Consortium for an Energy Efficiency Economy; white papers	0.75	0.75
Arkansas Dept. of Economic Development, Little Rock, AR LED traffic light case study	0.75	0.75
DEER & Pacific Gas & Electric data on energy efficiency motor operation	.9	.9
MEEA Illinois Residential Market Analysis, Final Report. May 12, 2003	0.75	0.75

If a measure was not weather sensitive, ICF was confident it would not contribute to energy savings uncertainty, and gave a confidence level of one to this savings uncertainty factor. Weather sensitive measures were ascribed confidence levels of 0.75 to their energy savings estimates.

The table below shows how ICF calculated weighted energy savings uncertainty for proper AC refrigerant charging (continuing with the above example).

Table E-5: Example calculation of weighted unit energy savings uncertainty

Uncertainty Factor	Lower Bound Confidence	Upper Bound Confidence	Factor Weight
Energy savings source (Data and assumptions from ICF)	0.75	0.75	5
Weather sensitivity (weather sensitive)	0.75	0.75	3

Weighted Confidence	**0.75**	**0.75**	
Weighted Uncertainty	**0.25**	**0.25**	

ICF's DOE-2 modelers estimated that the annual energy savings for this measure is 395 kWh. According to ICF's uncertainty analysis, the actual annual kWh savings may be between 296 and 494 kWh, inclusive. The factor weights shown in the table above do not vary for weather sensitive measures across the portfolio. Non-weather sensitive measures were given a weather sensitivity factor weight of one.

Projected measure Installations

The factors used in analyzing projected measure installation counts included the program's ability to get measures directly installed, the program's participation rate, the source of the baseline measure usage rate and the applicability of the baseline usage rate to the Company's portfolio.

The table below[1] documents ICF's confidence in each program's ability to get measures directly installed, and in the hard-wired participation rates used in the EEPM.

Table E-6: Program installations uncertainty factor confidence levels, part 1

PROGRAM TYPE	Program ability to install confidence (Lower Bound)	Program ability to install confidence (Upper Bound)	Hardwired participation rate confidence (Lower Bound)	Hardwired participation rate confidence (Upper Bound)
Appliance Recycling Program	0.75	0.75	0.9	1
C&I Custom	0.75	0.75	0.75	0.9
C&I New Construction	0.9	0.9	0.9	1
C&I Prescriptive	0.9	0.9	0.75	0.9
C&I Retrocommissioning	0.75	0.75	0.75	0.9
DCEO Building Industry Training & Education	0.5	0.5	0.75	0.9
DCEO Lights for Learning	0.75	0.75	0.75	0.9
DCEO Low Income Direct Install	0.5	0.5	0.75	0.9
DCEO Low Income EE Moderate Rehab (MF)	0.75	0.75	0.75	0.9
DCEO Low Income New Const. Gut Rehab	0.75	0.75	0.75	0.9
DCEO Manufacturing Energy Efficiency Program	0.75	0.75	0.75	0.9
DCEO Public Retrocommissioning	0.75	0.75	0.75	0.9
DCEO Public Sector Customized Program	0.75	0.75	0.75	0.9
DCEO Public Sector New Construction	0.9	0.9	0.75	0.9
DCEO Public Sector Prescriptive	0.9	0.9	0.75	0.9
DCEO Single Family Rehab	0.75	0.75	0.75	0.9
DCEO Smart Energy Design Assistance Program	0.75	0.75	0.75	0.9
ENERGY STAR Homes Program	0.75	0.75	0.75	0.9
Residential AC Tuneup	0.9	0.9	0.9	1
Residential Advanced Lighting	0.75	0.75	0.9	1
Residential Appliances	0.9	0.9	0.9	1
Residential Lighting	0.75	0.75	0.9	1
Residential Multifamily "All Electric" Sweep	0.5	0.5	0.75	0.9
Residential New HVAC	0.75	0.75	0.9	1
Single Family Home Performance	0.75	0.75	0.9	1
Small C&I CFL Intro Kit	0.75	0.75	0.9	1

[1] Note, this table does not include the Nature First Expansion Program because that element was added to the portfolio after the risk analysis was performed. In the final portfolio this program element contributed to less than one percent of portfolio energy savings. Therefore, its exclusion from the risk analysis does not invalidate the results of the analysis in any way, shape or form.

The table below document's ICF's confidence in the sources it used for baseline measure usage rates, and the applicability of those sources to ComEd's portfolio.

Table E-7: Program installations uncertainty factor confidence levels, part 2

Sector	Baseline Measure Usage Source	Baseline Source Confidence (Lower Bound)	Baseline Source Confidence (Lower Bound)	Baseline Source Applicability (Lower Bound)	Baseline Source Applicability (Upper Bound)
DCEO	DCEO	0.75	0.75	0.9	0.75
Non-Residential	KEMA, Inc., "Colorado DSM Market Potential Assessment," 2006	0.75	0.75	0.75	0.75
Residential	MEEA, "Ilinois Residential Market Analysis," 2003	0.9	0.9	0.9	0.9

An example of how weighted installation uncertainties were calculated is shown above in Table 3.

Net-to-gross ratios

Three factors were considered in the analysis of net-to-gross ratio (NTGR) uncertainty: the source of the NTGR estimate, the applicability of the NTGR to the Company's program and the uncertainty around an evaluator's ability to conduct robust impact studies.

Continuing with the Residential New HVAC Program example above, the table below demonstrates how ICF calculated the NTGR uncertainty for measures in this program.

Table E-8: Example of weighted NTGR uncertainty calculation

Uncertainty Factor	Lower Bound Confidence	Upper Bound Confidence	Factor Weight
NTGR source confidence	0.75	0.9	5
Applicability of source to ComEd program confidence	0.75	0.75	3
Evaluator's ability to conduct robust impact studies	0.75	0.75	1
Weighted Confidence	**0.73**	**0.88**	
Weighted Uncertainty	**0.27**	**0.12**	

The source of the NTGR used in the EEPM for the Residential New HVAC program was the California Energy Efficiency Policy Manual, which recommends a NTGR of 0.8 for all proposed programs. According to ICF's uncertainty analysis, the actual NTG for the program could range between 0.58 and 0.9, inclusive, though 0.8 was set as the most likely value in the uncertainty distribution.

Factor weights for NTGR source confidence and applicability of source to ComEd's program confidence were set based on ICF's professional judgment. The evaluator's ability to conduct robust impact studies was weighted proportional to each program's contribution to portfolio energy savings. The Residential HVAC Program is small, therefore it was ascribed a small weight for this factor (there is further discussion of this issue in Appendix A).

The table below[2] documents ICF's confidence in NTGR sources, the applicability of the NTGR sources used in ComEd's portfolio, and ability of an evaluator to conduct robust impact

[2] Note, following the final risk analysis, the NTGR for the C&I New Construction Program was changed to 0.8, based on the California Energy Efficiency Policy Manual.

estimates on the program. It also shows the weights used for the evaluation confidence in the calculation of the final weighted uncertainty for program NTGRs.

Table E-9: NTGR uncertainty factor confidence levels

Program	NTGR Source	Source Confidence (Lower Bound)	Source Confidence (Upper Bound)	Applicability of Source Confidence (Lower Bound)	Applicability of Source Confidence (Upper Bound)	Evaluation Confidence (Lower Bound)	Evaluation Confidence (Upper Bound)	Evaluation Confidence Weight
Appliance Recycling	"2004-05 Database for Energy Efficient Resources (DEER)", Version 2.01 October 26, 2005	0.9	1	0.9	0.9	0.75	0.75	2
C&I Custom	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	3
C&I New	ICF/ComEd	0.9	1	0.9	0.9	0.75	0.75	1
C&I Prescriptive	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	6
C&I Retrocommissioning	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1
DCEO Building Industry Training &	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
DCEO Lights for Learning	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
DCEO Low Income Direct Install	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
DCEO Low Income EE Moderate Rehab	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1
DCEO Low Income New Const. Gut	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1
DCEO Manufacturing Energy Efficiency	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
DCEO Public Retrocommissioning	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1
DCEO Public Sector Customized Program	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1
DCEO Public Sector New Construction	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1
DCEO Public Sector Prescriptive	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	4
DCEO Single Family Rehab	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
DCEO Smart Energy Design Assistance	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
ENERGY STAR Homes Program	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
Residential AC Tuneup	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
Residential Advanced Lighting	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
Residential Appliances	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	0
Residential Lighting	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	5
Residential Multifamily "All	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1
Residential New HVAC	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1
Single Family Home Performance	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1
Small C&I CFL Intro Kit	"Energy Efficiency Policy Manual v2", Prepared by the California Public Utilities Commission, Energy Division, August, 2003	0.75	0.9	0.75	0.75	0.75	0.75	1

Residential CFL NTGRs

Recent evaluation results were used in place of ICF's uncertainty estimates of NTGR for residential CFLs. This is because sensitivity analyses performed on the results the first Monte Carlo simulations revealed that portfolio energy savings is highly sensitive to CFL NTGRs. As documented in the table below, the evaluated NTGR were used as the lower bound estimates; upper bound estimates were set based on ICF's professional judgment. 0.8 was used as the most likely NTGR value in the uncertainty distributions for these measures.

Table E-10: Residential CFL NTGRs used in the uncertainty analysis

Sector	Measures	NTG		Source (Lower Bound)
		Lower Bound	Upper Bound	
Residential	Low wattage CFLs (<30 watts)	0.62	0.85	"2004/2005 Statewide Residential Retrofit Single-Family Energy Efficiency Rebate Evaluation Final Report," Itron, 2007.
Residential	Specialty CFLs (>=30 watts), torchieres, etc.	0.72	0.85	"2004/2005 Statewide Residential Retrofit Single-Family Energy Efficiency Rebate Evaluation Final Report," Itron, 2007.
Residential	CF fixtures	0.36	0.8	"2004/2005 Statewide Residential Retrofit Single-Family Energy Efficiency Rebate Evaluation Final Report," Itron, 2007.
Residential	Multifamily CFLs	0.76	0.85	"Evaluation of the 2004-2005 Statewide Multifamily Rebate Program," KEMA, 2007.

Engineering Verification Factors

As stated above, the engineering verification factor was not a key uncertainty in the risk analysis. Therefore, ICF did not use the same weighting process to create uncertainty distributions around engineering verification factors for programs. Instead, ICF exercised professional judgment based on its experience with energy efficiency programs to estimate uncertainty distributions for program engineering verification factors. Triangular probability distributions were used for setting these uncertainties. For most programs, the lower bound of the distribution was set at 0.95 and the most likely and upper bound values were both set at 1.

Table E-11: Program Engineering Verification Factor confidence levels

Program	Engineering Verification Factor	
	Lower Bound	Upper Bound
Appliance Recycling Program	1	1
C&I Custom	0.95	1
C&I New Construction	1	1
C&I Prescriptive	0.95	1
C&I Retrocommissioning	0.95	1
DCEO Building Industry Training & Education	0.95	1
DCEO Lights for Learning	0.95	1
DCEO Low Income Direct Install	0.95	1
DCEO Low Income EE Moderate Rehab (MF)	0.95	1
DCEO Low Income New Const. Gut Rehab	0.95	1
DCEO Manufacturing Energy Efficiency Program	0.95	1
DCEO Public Retrocommissioning	0.95	1
DCEO Public Sector Customized Program	0.95	1
DCEO Public Sector New Construction	0.95	1
DCEO Public Sector Prescriptive	0.95	1
DCEO Single Family Rehab	0.95	1
DCEO Smart Energy Design Assistance Program	0.95	1
ENERGY STAR Homes Program	0.95	1
Residential AC Tuneup	0.95	1
Residential Advanced Lighting	0.95	1
Residential Appliances	0.95	1
Residential Lighting	0.95	1
Residential Multifamily "All Electric" Sweep	0.95	1
Residential New HVAC	0.95	1
Single Family Home Performance	0.95	1
Small C&I CFL Intro Kit	0.95	1

Appendix F: Cost Recovery Rider

RIDER EDA
ENERGY EFFICIENCY AND DEMAND RESPONSE ADJUSTMENT

Applicable to All Rates Except Rate RESS7 and Rate MSPS7

OVERVIEW.
Pursuant to the provisions of Section 12-103 of the Public Utilities Act (Act), 220 ILCS 5/12-103, that became effective on August 28, 2007, authorizing the assessment of charges for approved energy efficiency and demand response measures on retail customers' monthly bills for electric service, an Energy Efficiency and Demand Response Adjustment (EDA) is computed by the Company each year to recover all Incremental Costs incurred by the Company in association with Energy Efficiency and Demand Response Measures. Such EDA is applied to each kilowatt-hour (kWh) delivered to retail customers for electric service in accordance with the provisions of this rider.

DEFINITIONS.
The following definitions are for use in this rider.

Energy Efficiency and Demand Response Measures
Energy Efficiency and Demand Response Measures (Measures) mean activities and programs that are developed, implemented, or administered by or for the Company, or the Department of Commerce and Economic Opportunity (DCEO), that are related to energy efficiency and demand response plans approved by the Illinois Commerce Commission (ICC).

Incremental Costs
Incremental Costs mean costs incurred by the Company or recovered on behalf of DCEO in association with the Measures and include, but are not limited to (a) fees, charges, billings, or assessments related to the Measures; (b) costs or expenses associated with equipment, devices, or services that are purchased, provided, installed, operated, maintained, or monitored for the Measures; (c) the revenue requirement equivalent of the return of and on a capital investment associated with a Measure, based on the most recent rate of return approved by the ICC; and (d) all legal and consultative costs associated with the Measures that are incurred after August 28, 2007.

Incremental Costs also include incremental expenses for wages, salaries, and benefits of Company employees, including direct and indirect incremental costs associated with such Company employees, who are hired for positions that are specifically related to the Measures and that were created after August 28, 2007.

Incremental Costs may not include any expenses for wages, salaries, and benefits of Company employees, employed either before or after August 28, 2007, that are otherwise recovered under other effective tariffs.

Incremental Costs, such as legal and consultative fees associated with the development of ICC approved energy efficiency and demand response plans, may be amortized over the three (3) year period of such plans.

(Continued on Sheet No. xxx)

RIDER EDA
ENERGY EFFICIENCY AND DEMAND RESPONSE ADJUSTMENT

(Continued from Sheet No. xxx)

EDA COMPUTATION AND APPLICATION.
Beginning with the June 2008 monthly billing period, the EDA is applied, in accordance with the provisions of this rider, to each kWh delivered to retail customers. The total amount billed in accordance with the provisions of this rider is separately stated on each retail customer's monthly bill. The EDA is computed in accordance with the following equation:

$$EDA = \frac{PC - RIC + ARF + ORF}{PE} \times UF \times \frac{100\ ¢}{\$\ 1}$$

Where:

EDA = Energy Efficiency and Demand Response Adjustment, in ¢/kWh rounded to the thousandths of a cent, is applied to each kWh delivered to each retail customer during the twelve (12) monthly billing periods, beginning with the June monthly billing period following the date that such EDA is filed with the ICC for informational purposes, to recover Incremental Costs, or in the case of a revised EDA, beginning with the monthly billing period following the date that such revised EDA is filed with the ICC for informational purposes and extending through the following May monthly billing period.

PC = Projected Costs, in $, are equal to the projected Incremental Costs associated with the applicable twelve (12) month period of an ICC approved energy efficiency and demand response plan, beginning in June following the date that the EDA is filed with the ICC, or in the case of a revised EDA, beginning with the month following the date that such revised EDA is filed with the ICC for informational purposes and extending through the following May,

RIC = Reimbursements of Incremental Costs, in $, are equal to funds from any source other than the application of EDAs that the Company expects to receive that are associated with the applicable twelve (12) month period of an ICC approved energy efficiency and demand response plan, beginning in June following the date that the EDA is filed with the ICC, or in the case of a revised EDA, beginning with the month following the date that such revised EDA is filed with the ICC for informational purposes and extending through the following May, if any, directly related to the implementation of Measures and not otherwise credited through this rider.

ARF = Automatic Reconciliation Factor, in $, is equal to the cumulative over collection or under collection, pursuant to plans approved by the ICC, resulting from the application of then applicable EDAs through the end of the following May monthly billing period. To the extent such ARF is not known through the end of the May monthly billing period due to the fact that the EDA is computed and filed with the ICC during the May monthly billing period, the ARF is the cumulative over collection or under collection the Company expects through the end of the May monthly billing period. In the case of a revised EDA, the ARF is equal to the cumulative over collection or under collection resulting from the application of then applicable EDAs beginning with the monthly billing period following the date that such revised EDA is filed with the ICC for informational purposes and extending through the following May monthly billing period.

(Continued on Sheet No. xxx)

RIDER EDA
ENERGY EFFICIENCY AND DEMAND RESPONSE ADJUSTMENT

(Continued from Sheet No. xxx)

EDA COMPUTATION AND APPLICATION (CONTINUED).

ORF = Ordered Reconciliation Factor, in $, is equal to an amount ordered by the ICC to be refunded to or collected from retail customers.

UF = Uncollectible Factor to adjust for applicable uncollectible costs incurred by the Company and equal to 1.0072. Notwithstanding the previous provisions of this definition, in the event that Rider UF - Uncollectible Factors (Rider UF) is approved by the ICC and becomes effective, the relevant uncollectible factor is as listed in such Rider UF for retail customers taking service under Rate BES-H - Basic Electric Service-Hourly Energy Pricing (Rate BES-H).

PE = Projected Energy, in kWh, is equal to a projection of the electric power and energy expected to be delivered during such twelve (12) monthly billing periods, beginning with the June monthly billing period, or in the case of a revised EDA, beginning with the monthly billing period following the date that such revised EDA is filed with the ICC for informational purposes and extending through the following May monthly billing period.

Each year, on or before May 20, beginning in 2008, the Company must file with the ICC, for informational purposes, the EDA, computed in accordance with the equation in this EDA Computation and Application section, that is to be applied to each kWh delivered to retail customers during the twelve (12) monthly billing periods beginning with the June monthly billing period following such filing.

Notwithstanding the provisions of the previous paragraph, the Company may revise an EDA if the Company determines a revised EDA results in a better match between EDA revenues and Incremental Costs. The Company must file with the ICC, for informational purposes, such revised EDA no later than the fifteenth day of the month immediately preceding the monthly billing period during which such revised EDA becomes effective. The revised EDA is determined in accordance with the equation in this EDA Computation and Application section.

(Continued on Sheet No. xxx)

RIDER EDA
ENERGY EFFICIENCY AND DEMAND RESPONSE ADJUSTMENT

(Continued from Sheet No. xxx)

ANNUAL REPORTING.
Each year, on or before August 31, beginning in 2009, the Company must submit to the ICC an annual report that summarizes the operation of this rider and reconciles the revenues accrued through the application of the EDA with the Incremental Costs incurred in accordance with the provisions of this rider for the previous twelve (12) monthly billing periods ending with the May monthly billing period prior to such filing. Notwithstanding the previous provisions of this Annual Reporting section, the first such annual report is for the period beginning with the June 2008 monthly billing period, and extending through May 2009 monthly billing period.

Such annual report must include (a) a document specifying the ARF; (b) testimony regarding the reasonableness and prudence of the Company's Incremental Costs included in the reconciliation as provided for in Section 12-103(f) of the Act; and (c) the results of an internal audit verified by an officer of the Company. Such internal audit must (i) examine whether the Incremental Costs recovered through the EDA are associated with the Measures and are not recovered through other approved tariffs; (ii) test retail customer bills to determine whether the EDA is being properly applied to such bills; (iii) test that the revenues stemming from the EDA are correctly stated; and (iv) test that funds from any source other than the application of the EDAs are identified and reflected in the computation of the EDA and ARF .

EDAs computed in accordance with the provisions of this rider are subject to adjustment in accordance with lawful orders issued by the ICC. Following the Company's annual report filing, the ICC initiates a hearing to review such annual report pursuant to Section 12-103(e) of the Act. All amounts previously credited or collected under this rider are subject to further adjustment through the ORF, as directed by the ICC following such review.

MISCELLANEOUS GENERAL PROVISIONS.
The Company's Schedule of Rates, of which this rider is a part, includes General Terms and Conditions and other tariffs. Service hereunder is subject to the General Terms and Conditions and such other tariffs, as applicable.