DCEO Illinois Public Sector &Low Income Energy Efficiency Potential Study

Energy Resources Center

August 5, 2013

Study Acknowledgements

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- Thanks to the following for their significant contributions

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Agenda

▸ Objectives

▸ Approach
  ▸ Data Collection
  ▸ Sector Energy Consumption
  ▸ Data Analysis
  ▸ Building Energy Model

▸ Technical & Economic Potential

▸ Maximum & Program Achievable Potential

▸ Results

Objectives

▸ Be a resource in developing the 2014 – 2016 Illinois Energy Now Program 3 year plan to be submitted to the ICC by September 1st, 2013

▸ Develop energy efficiency potential estimates for 2017-2019 for long-term planning purposes

▸ Meet requirements of SB 1652 to provide to the IPA: "A comprehensive energy efficiency potential study for the utility's service territory that was completed within the last 3 years". Submitted to IPA on July 15th, 2013

Market Sectors Included

- Public Sector
  - Airports
  - Community Colleges
  - Correctional Facilities
  - K-12 Schools
  - Libraries
  - Medical Facilities
  - Municipal Facilities
  - Park Districts
  - Police & Fire Stations
  - Public Works
  - State Universities
  - Street Lighting
  - Wastewater Treatment

- Low Income Housing
  - Single-Family
    - Single Family Homes
    - Mobile Homes
  - Multi-Family
    - Mutli-Family High Rises
    - 2-4 Unit Buildings

Study Reports on:

▸ **Sector Annual Energy Consumption:**

▸ **Technical Potential**: Snapshot of today's energy reduction potential if all technically feasible measures were implemented.

▸ **Economic Potential**: Snapshot of today's energy reduction potential if all cost-effective measures were implemented.

▸ **Maximum Achievable Potential**: Calculated at program level (2014-2019) assuming the most aggressive program scenario

▸ **Program Achievable Potential**: Subset of maximum achievable potential based on available funding and established incentive rates

Approach: Data Collection

- Public Sector:
  - Energy Usage Questionnaires (687) – developed by ERC
  - SEDAC Reports (99 – all completed within last 12 months)
  - EIA Survey Data (101)
  - Utility Data
  - Illinois Coalition for Responsible Outdoor Lighting Street Lighting Study

- Low Income Housing
  - Energy Usage Questionnaires (69) – developed by ERC
  - EIA Survey Data (90)
  - Utility Data
  - DCEO Data and Census Data

- Other Sources
  - Illinois Technical Reference Manual
  - KEMA, Ameren, ComEd, & Other Potential Studies

Energy Questionnaires

Illinois Department of Commerce & Economic Opportunity
Pat Quinn, Governor

Energy Efficiency Potential Study Survey

Surveyed By: Date:

1. Demographics

1.1 Facility Info

Facility Address	Facility Name	Facility City
Contact Name	Contact Title	Phone and email

1.2 Estimate the age of the building

0-10 years	
11-20 years	
21-30 years	
31-40 years	
41+ years	

1.3 Building Information

Square footage of the facility	
Number of levels in building	

1.4 Breakdown of your facility

	# of Rooms	% of Total SF
Classrooms		
Offices		
Cafeterias		
Sports Areas		
Other		

1.5 Operating Hours

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

1.6 On average, how many occupants are in your facility during operating hours?

1.7 Percentage of seasons building is used

Fall	
Winter	
Spring	
Summer	

1.8 Does your facility receive

	Yes	No
Electricity Bills		
Natural Gas Bills		

1.9 Annual energy use of the building

kWh	
Therms	
Other	

2. Heating / Cooling Systems

2.1 What percentage of the facility is heated?

0-25%	
26-50%	
51-75%	
76-100%	

2.2 What percentage of the facility is cooled?

0-25%	
26-50%	
51-75%	
76-100%	

2.3 Are temperatures set back in Winter during non-occupied hours?

Yes		No	

2.4 Are temperatures set up in Summer during non-occupied hours?

Yes		No	

2.5 What are the typical winter temperature settings?

When building is occupied	
When building is not occupied	

2.6 What are the typical Summer temperature settings?

When building is occupied	
When building is not occupied	

2.7 How is the HVAC system controlled?

Non-programmable thermostats	
Programmable thermostats	
Centralized HVAC control system	
Other (Please specify)	

2.8 How often is maintenance performed on the heating/cooling equipment (e.g. filter replacement, static pressure)?

At least every 6 months	
Once a year	
Once every 2 years	
Once every 3-5 years	
Once every 5+ years	
Never	

2.9 Heating units

	Number	Age	Btu Output	Efficiency
Furnaces				
Rooftop Units				
Centralized Boilers				
Electric Baseboard Heaters				
Heat-pumps				
Other (Please specify)				

2.10 Cooling units

	Number	Age	Ton Output	Efficiency
Window Units				
Rooftop Units				
Centralized Chillers				
Heat-pumps				
Other (Please specify)				

Energy Questionnaires Continued

2.11 How often is steam trap maintenance done?

At least every 6 months	
Once a year	
Once every 2 years	
Once every 3-5 years	
Once every 5+ years	
Never	

2.12 Does your facility utilize a steam system?

Yes		No	

2.13 Approx. the no. of steam traps in the system.

2.14 Does your facility insulate hot pipes?

Yes		No	

2.15 Approx. the length of non-insulated pipes.

3. Lighting

3.1 Estimate the number of lamps used inside the facility.

Old standard lighting (T12)	
New standard lighting (T8)	
High efficiency lighting (T5)	
Incandescent Lamps	
Compact Fluorescent Lamps	
Other (Please specify)	

3.2 Estimate the number of HID lamps used inside and outside your facility.

	HID 250W		HID 400W		HID 1000W		Other (Please specify)	
	Inside	Outside	Inside	Outside	Inside	Outside	Inside	Outside
Metal Halide								
Low Pressure Sodium								
High Pressure Sodium								
Mercury Vapor								
Other (Please specify)								

3.3 Estimate the number of exit signs in your facility.

Incandescent	
Fluorescent	
LED	
Other (Please specify)	

3.4 What percent of areas where occupancy sensors are feasible have them installed?

	Bathrooms	Classrooms	Offices	Other
0%				
1-25%				
26-50%				
51-75%				
76-100%				

4. General

4.1 Estimate the number of appliances.

	EnergyStar	Non-EnergyStar
Computers		
Printers/Copiers		
Server		
Vending Machines		
Icemakers		
Dishwasher		

4.2 Estimate the number of food prep appliances.

	EnergyStar	Non-EnergyStar
Refrigerators		
Microwaves		
Oven/broiler		
Fryer		
Hot Food Container		
Steamer		

4.3 Domestic Hot Water

	Number	Age	Btu Output	Efficiency
Electric HW Heaters				
Natural Gas HW Heaters				
Tankless HW Heater				
Heat Exchanger Based				
Other (please specify)				

4.4 Does the building utilize low flow showers/faucets?

Yes		No	

4.5 Please estimate the number of non-low flow faucets and shower heads in the building.

Faucets		Showers	

4.6 What color is the building roof?

Dark	
Light/White	
"Green" Roof	
Unknown	

5. Energy Efficiency

5.1 Please check any energy efficiency projects that you have implemented in the last 5 years.

Change out HID or T12 lighting to T8/T5		Upgrade to LED exit signs		High efficiency HVAC units	
Incandescent to fluorescent bulbs		VFD on HVAC units		Tankless or high efficiency water heater	
Install Occupancy Sensors		EnergyStar Appliances		EnergyStar cooking equipment	

5.2 Other than the items checked above, please list any energy efficiency projects you have implemented in the last 5 years.

Heating/Cooling	
Lighting	
Appliances	
Windows/insulation	
Other (please specify)	

6. Other

6.1 Pool Information

Number of heaters and BTU output	
Number of pumps	
Size of pool in gallons	
Does the facility utilize a pool cover?	

6.2 Motors

Number of motors	
Approximate horsepower rating	
Approximate age of motors	
Efficiency of motors	

Approach: Sector Energy Consumption

- Data from utilities
  - Ameren Electric/Gas
  - ComEd Electric
  - North Shore Gas
  - Peoples Gas

- Other Data
  - Correctional Facilities
  - State Universities

- Calculations
  - Nicor Area Consumption
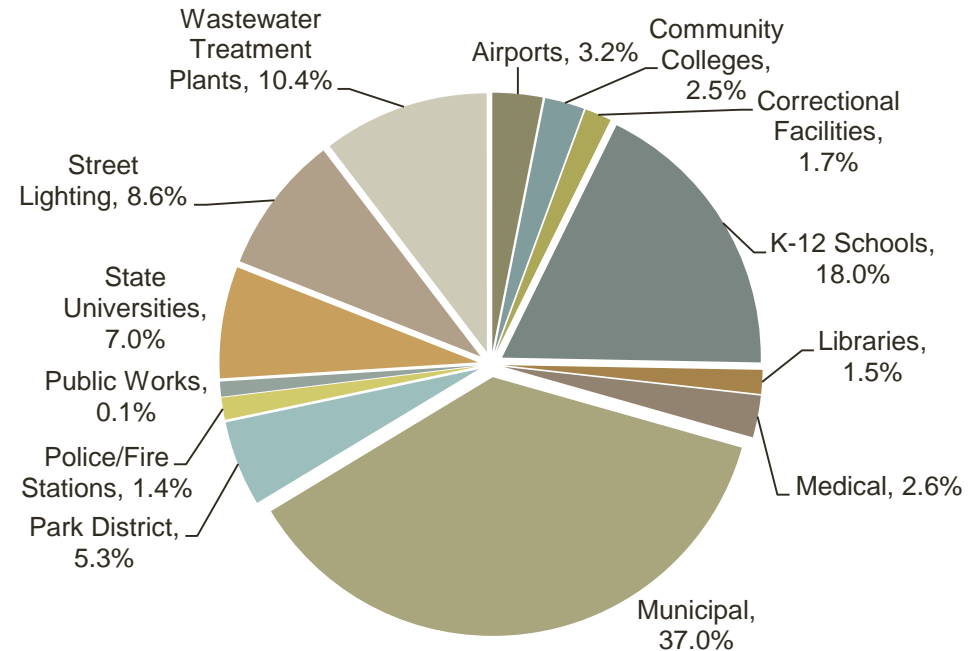 - Utilities provided differing breakdown of data

Example Utility Data Calculations

▸ Utilities requested to not share specific data

▸ ComEd was able to provide Airport electrical energy consumption for their area

▸ Ameren was not able to provide Airport electrical energy consumption for their area

▸ Obtain information on number of flights in ComEd and Ameren territory

▸ Established ratio between two areas, multiplied ComEd Airport energy consumption by ratio to obtain Airport electrical energy consumption for Ameren area

Public Sector Energy Consumption - Electric

Sector	Consumption (GWh)
Airports	402
Community Colleges	317
Correctional Facilities	213
K-12 Schools	2,300
Libraries	190
Medical	335
Municipal	4,722
Park District	682
Police/Fire Stations	176
Public Works	121
State Universities	891
Street Lighting	1,104
Wastewater Treatment Plants	1,325
Total	12,777

Pie chart – Wastewater Treatment Plants, 10.4%; Street Lighting, 8.6%; State Universities, 7.0%; Public Works, 0.1%; Police/Fire Stations, 1.4%; Park District, 5.3%; Municipal, 37.0%; Medical, 2.6%; Libraries, 1.5%; K-12 Schools, 18.0%; Correctional Facilities, 1.7%; Community Colleges, 2.5%; Airports, 3.2%

Notes:

- 12,777 GWh represents approximately 11.1% of the state's total electric consumption

- [12] Approximately 23% of street lighting is utility owned

Public Sector Energy Consumption – Natural Gas

Sector	Consumption (Million Therms)
Airports	13.1
Community Colleges	14.7
Correctional Facilities	20.3
K-12 Schools	123.8
Libraries	7.5
Medical	19.1
Municipal	166.6
Park District	35.4
Police/Fire Stations	6.5
Public Works	5.5
State Universities	91.7
Street Lighting	---
Wastewater Treatment Plants	52.4
Total	556.6
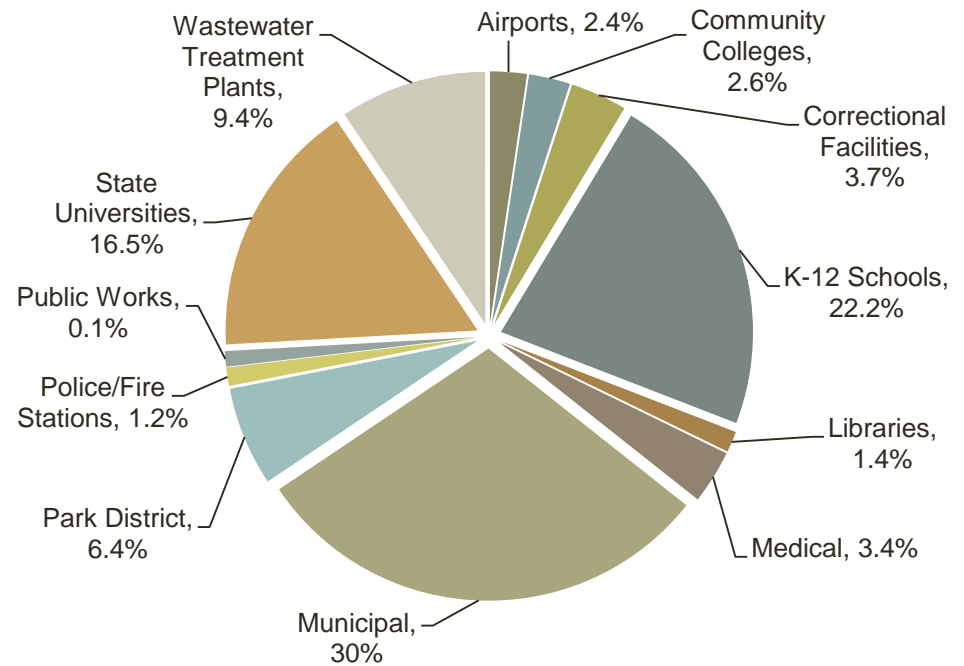
▸ Notes:

  ▸ 556.6 Million Therms represents 7.2% of the state's total natural gas consumption

▸ 13

Low-Income Sector Energy Consumption
(data provided by Utilities)

Sector	Electricity (GWh)	Natural Gas (MillionTherms)
Single-Family	3,550	356.8
Multi-Family	3,871	389.0
Total	7,421	745.8

▸ Notes:

 ▸ 7,421 GWh represents approximately 6.5% of the state's total electric consumption

 ▸ 746 Million Therms represents 9.7% of the state's total natural gas consumption

Approach: Data Analysis

- Data from each of the surveys was inputted into a Microsoft Excel based model

- Data Review
  - In cases where efficiency of system was not provided, efficiency was estimated (each system of each facility)

- Model facility energy consumption based on TRM assumptions

- Model calibration: compare each modeled facility energy consumption to actual reported annual consumption

- Adjust assumptions so that modeled energy consumption is within reasonable range of actual reported consumption
  - If impossible to obtain reasonable model, removed facility from analysis (occurred on limited basis)

Input/Review Data – Example Heating Muni Sector

▸ Facility survey provided boiler data

  ▸ One hot water 2,860,000 Btu/Hr input boiler running at 80% efficiency – 12 years old

▸ AFUE Standards for unknown data

  ▸ Four hot water 1,300,000 Btu/H input boilers running at an unknown efficiency – 3 years old

  ▸ Federal AFUE standard of 80% was used

Building Energy Model – Example Heating Muni Sector

▸ Chicago area Municipal Facility provided annual electricity/natural gas consumption

▸ Modeled natural gas consumption was low based on boiler information and TRM assumptions

▸ Adjusted boiler eFLH from TRM estimate of 666 hr/yr (Chicago area Municipal Facility) to 710 hr/yr to meet facility energy consumption

Technical & Economic Energy Potential Example Heating Muni Sector

▸ Technical & Economic Energy Potential calculated based on estimated consumption of each system in each facility

▸ Technical Potential based on improving system to highest efficiency available (96% efficient condensing boiler)

▸ Economic Potential based on TRC values on measure level – highest energy reduction potential chosen that still meets TRC requirements

  ▸ 96% efficient condensing boiler

  ▸ 90% efficient boiler

  ▸ 85% efficient boiler

  ▸ Boiler tune-up

Technologies List (Sample)

| Heating	Cooling	Indoor Lighting	Exit Signs	Outdoor Lighting	Appliances	Domestic Hot Water (DHW)	Behavioral	Building Envelope	Other
Furnace	Window Units	T12	Incandescent	HID	Computer	Electric	Adjusting Temperature Setpoints	High Efficiency Windows	Motors
Roof-top Units	Roof-top Units	T8	CFL	Incandescent	Printer/Copiers	Natural Gas w/Tank	Implementing Temperature Setback/up	Ceiling/Wall Insulation	Pool Heaters
Boiler	Chillers	High-efficiency T8	LED	LED	Servers	Natural Gas Tank-less		Air Sealing	Demand Control Ventilation
Electric Coils	Heat-pumps	LED Fluorescent Tubes			Vending Machines	Low Flow Faucets/Showers		Reflective Roof	
Heat-pumps	Split Systems	Incandescent			Icemaker				
Other Heating Units	Other Cooling Units	CFL			Dishwasher				
Hot Pipe Insulation		Screw-in LED			Refrigerator				
Steamtrap Repair		HID			Microwave				
		HB T8			Oven/Broiler				
		HB T5			Fryer				
		Occupancy Sensors			Hot Food Container				
		Over-lighting			Steamer				

Technical & Economic Energy Potential Example Heating Muni Sector

▸ To reach sector-wide numbers, data extrapolated based on ratio of energy consumption of energy questionnaires to energy consumption of sector

  ▸ Consumption represented by questionnaires is 2.8 million therms for Municipal Sector (total)

  ▸ Example: Heating system technical potential in Municipal Facilities estimated to be 0.5 million therms (17.5%)

  ▸ Estimated total energy consumption in Muni Sector of 166.6 million therms

  ▸ Heating system technical potential in Municipal Facilities sector is 17.5% of total consumption ----> 29.2 million therms

Example Electrical Energy Technical Potential: Municipal Facilities – Breakdown by System
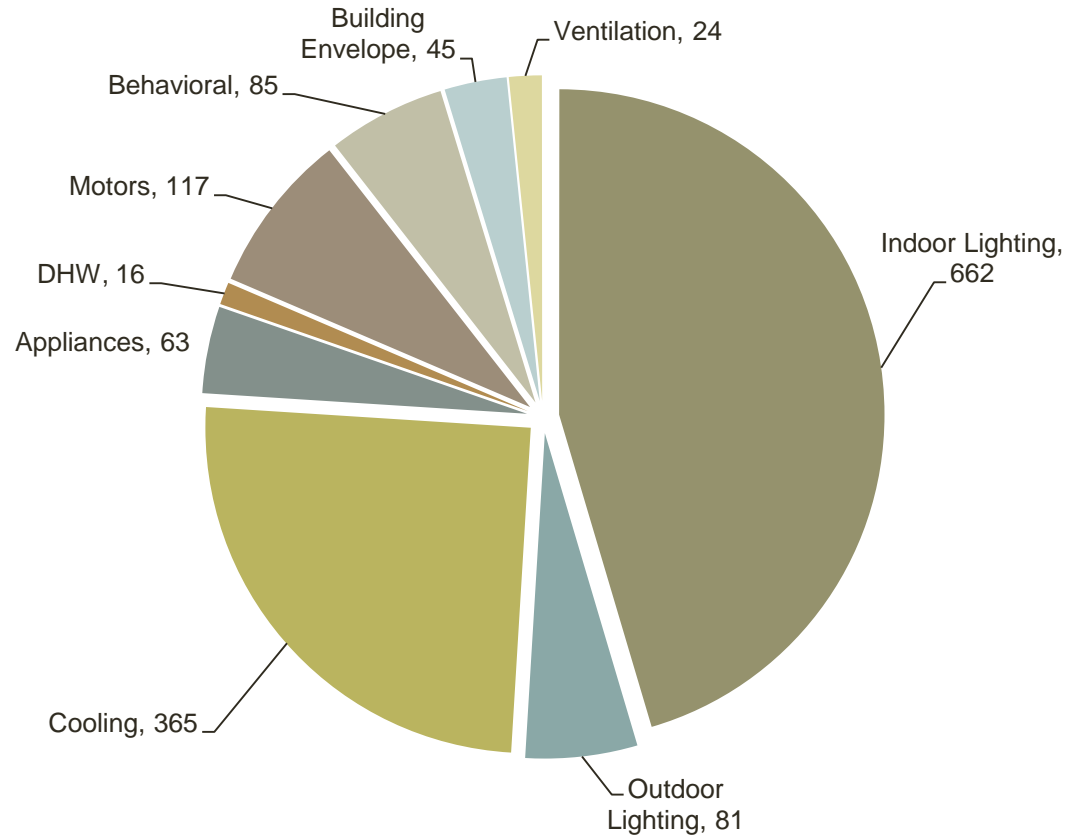
Total: 1,459 GWh

Example Electrical Energy Economic Potential: Municipal Facilities – Breakdown by System

Ventilation, 24
Behavioral, 85
Motors, 117
Appliances, 18
Cooling, 12
Outdoor Lighting, 81
Indoor Lighting, 494
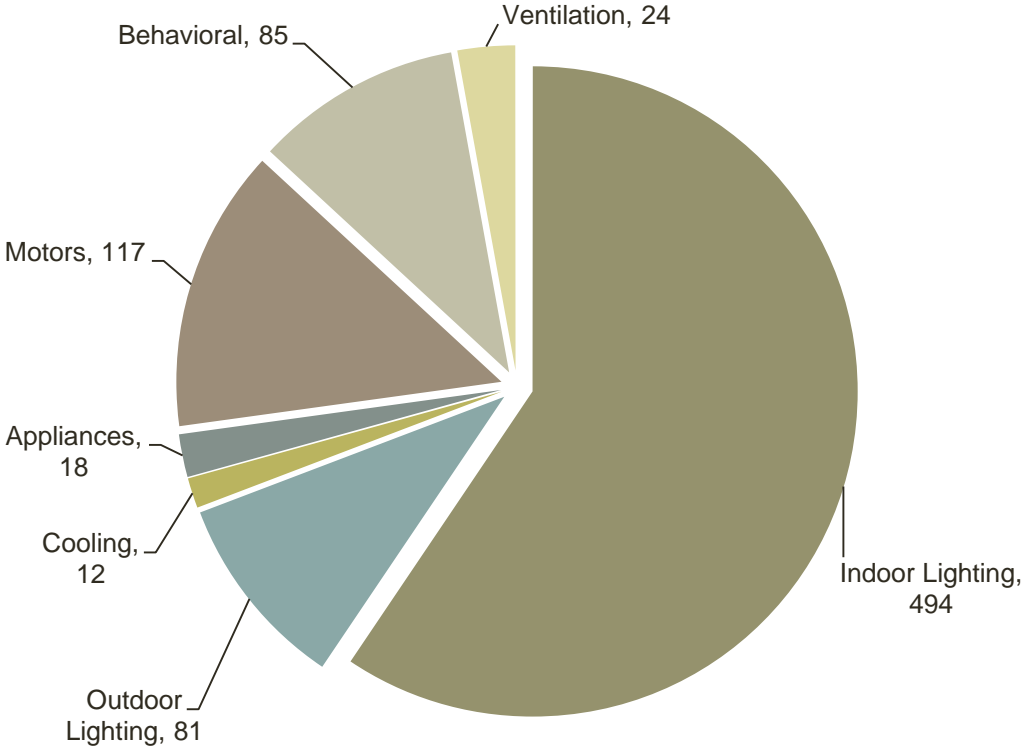
Total: 831 GWh

Public Sector Results – Electric Potential (Breakdown by Facility Type)

Facility Type	Sector Annual Consumption (GWh)	Technical (% of Consumption)	Technical (GWh)	Economic (% of Consumption)	Economic (GWh)
Airports	402	17.2%	69	14.0%	56
Community Colleges	317	37.0%	117	22.2%	70
Correctional Facilities	213	31.4%	67	27.9%	59
K-12 Schools	2,300	49.5%	1,139	36.5%	838
Libraries	190	54.1%	103	30.2%	57
Medical Facilities	335	41.1%	138	20.9%	70
Municipal Facilities	4,722	30.9%	1,459	17.6%	831
Park District Facilities	682	31.2%	213	18.7%	128
Police & Fire Stations	176	33.5%	59	24.0%	42
Public Works Facilities	121	36.5%	44	15.6%	19
State Universities	891	37.6%	335	25.2%	225
Street Lighting	1,104	55.7%	615	55.7%	615
Wastewater Treatment Facilities	1,325	32.7%	433	26.1%	346
Total	12,777	37.5%	4,790	26.3%	3,357

Public Sector Results – Electric Potential (Breakdown by System)

System	Technical Potential (GWh)	% of Total Potential	Economic Potential (GWh)	% of Total Potential
Indoor Lighting	1,760	36.7%	1,173	34.9%
Outdoor Lighting	139	2.9%	139	4.1%
Cooling	1,272	26.5%	707	21.1%
Appliances	93	1.9%	28	0.8%
DHW	27	0.6%	0	0.0%
Motors	285	6.0%	277	8.2%
Behavioral	172	3.6%	172	5.1%
Building Envelope	164	3.4%	35	1.0%
Ventilation	59	1.2%	59	1.8%
Street Lighting	615	12.8%	615	18.3%
Process Related	203	4.2%	153	4.5%
Total	4,790	100.0%	3,357	100.0%

Example Natural Gas Technical Potential: Municipal Facilities – Breakdown by System
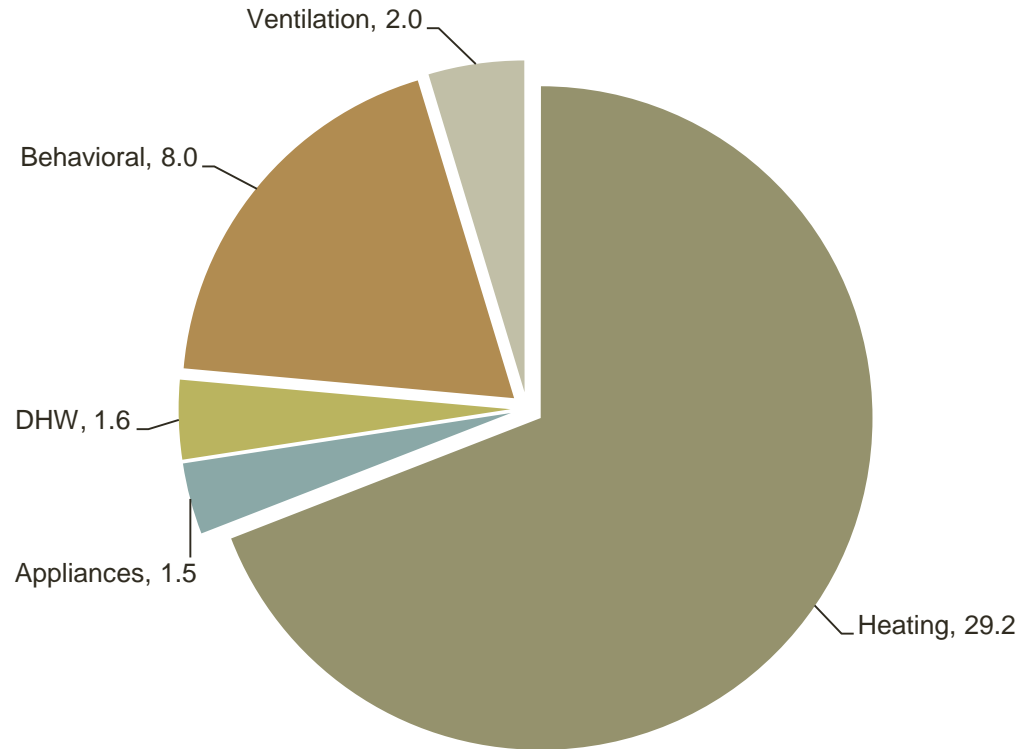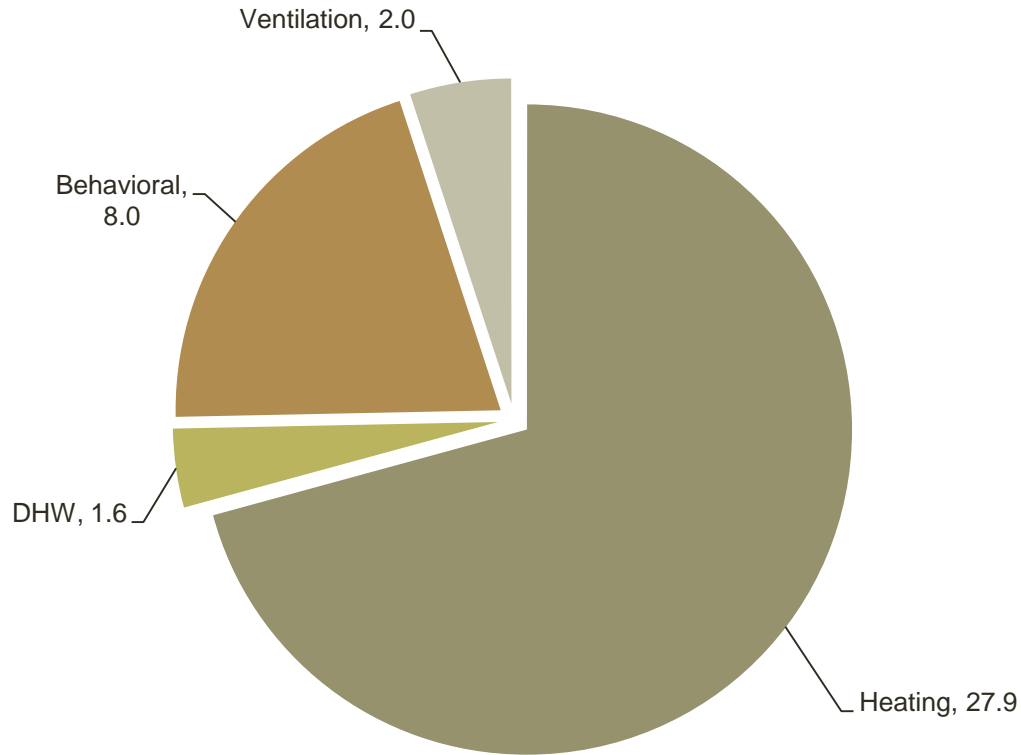

Total: 42.3 Million Therms

Example Natural Gas Economic Potential: Municipal Facilities – Breakdown by System

Total: 39.5 Million Therms

Public Sector Results – Natural Gas Potential (Breakdown by Facility Type)

Facility Type	Sector Annual Consumption (Million Therms)	Technical (% of Consumption)	Technical (Million Therms)	Economic (% of Consumption)	Economic (Million Therms)
Airports	13.1	21.5%	2.8	21.4%	2.8
Community Colleges	14.7	29.1%	4.3	27.1%	4.0
Correctional Facilities	20.3	28.9%	5.9	27.6%	5.6
K-12 Schools	123.8	28.7%	35.5	23.3%	28.9
Libraries	7.5	24.1%	1.8	13.2%	1.0
Medical Facilities	19.1	25.3%	4.8	25.3%	4.8
Municipal Facilities	166.6	25.4%	42.3	23.7%	39.5
Park District Facilities	35.4	28.7%	10.2	20.4%	7.2
Police & Fire Stations	6.5	19.8%	1.3	17.4%	1.1
Public Works Facilities	5.5	22.1%	1.2	14.8%	0.8
State Universities	91.7	22.2%	20.3	21.3%	19.5
Street Lighting	N/A	N/A	N/A	N/A	N/A
Wastewater Treatment Facilities	52.4	18.9%	9.9	16.0%	8.4
Total	556.6	25.2%	140.3	22.2%	123.7

Public Sector Results - Natural Gas Potential (Breakdown by System)

System	Technical Million Therms	% of Total	Economic Million Therms	% of Total
Heating	104.1	74.2%	95.5	77.2%
Appliances	4.5	3.2%	0.5	0.4%
DHW	5.2	3.7%	3.5	2.8%
Pools	2.1	1.5%	2.1	1.7%
Behavioral	14.5	10.3%	14.5	11.7%
Building Envelope	3.3	2.3%	0.9	0.7%
Ventilation	6.6	4.7%	6.6	5.3%
Total	140.3	100.0%	123.7	100.0%

Low Income Results – Electric Potential (Breakdown by Facility Type)

Facility Type	Sector Annual Consumption (GWh)	Technical (% of Consumption)	Technical GWh	Economic (% of Consumption)	Economic GWh
Single-Family	3,550	34.8%	1,236	14.3%	507
Multi-Family	3,871	41.2%	1,595	22.3%	865
Total	7,421	38.1%	2,831	18.5%	1,372

Low Income Results –Electric Potential (Breakdown by System)

System	Technical GWh	% of Total	Economic GWh	% of Total
Indoor Lighting	1,192	42.1%	912	66.5%
Outdoor Lighting	46	1.6%	46	3.4%
Cooling	855	30.2%	126	9.2%
Appliances	183	6.5%	3	0.2%
DHW	8	0.3%	0	0.0%
Motors	10	0.4%	0	0.0%
Behavioral	132	4.6%	132	9.6%
Building Envelope	368	13.0%	115	8.4%
Ventilation	37	1.3%	37	2.7%
Total	2,831	100.0%	1,372	100.0%

Low Income Results – Natural Gas Potential (Breakdown by Facility Type)

Facility Type	Sector Annual Consumption (Million Therms)	Technical (% of Consumption)	Technical Therms	Economic (% of Consumption)	Economic Therms
Single-Family	356.8	27.8%	99.3	20.1%	71.6
Multi-Family	389.0	45.6%	177.6	38.4%	149.5
Total	745.8	37.1%	276.9	29.7%	221.1

Low Income Results - Natural Gas Potential (Breakdown by System)

System	Technical Million Therms	% of Total	Economic Million Therms	% of Total
Heating	120.9	43.7%	102.5	46.4%
Appliances	15.8	5.7%	0	0.0%
DHW	43.8	15.8%	32.4	14.6%
Behavioral	45.4	16.4%	45.4	20.5%
Building Envelope	42.2	15.2%	31.9	14.4%
Ventilation	8.9	3.2%	8.9	4.0%
Total	276.9	100.0%	221.1	100.0%

Summary Technical & Economic Potential

Sector	Electric			Natural Gas		
	Sector Annual Consumption (GWh)	Technical Potential	Economic Potential	Sector Annual Consumption (M therms)	Technical Potential	Economic Potential
Public Sector	12,777	4,790 GWh	3,357 GWh	556.6	140.3 M therms	123.6 M therms
		37.5%	26.3%		25.2%	22.2%
Low Income	7,421	2,831 GWh	1,372 GWh	745.8	276.9 M therms	221.1 M therms
		38.1%	18.5%		37.1%	29.7%

Maximum & Program Achievable Potential

‣ Achievable Potential done at program level rather than measure level (to represent EE delivery method, by program)

‣ **Maximum Achievable Potential**: Calculated at program level (2014-2019) assuming the most aggressive program scenario

‣ **Program Achievable Potential**: Subset of maximum achievable potential based on available funding and established incentive rates

Achievable Potential Approach

- Developed Sigmoid Function to model adoption of energy efficiency incentives by market
  - Curves developed for both end-of-life and retrofit up-take
  - Curves vary by measure based on previous DCEO incentive program customer participation
  - Adjusted each year as necessary to account for changes in baseline, market size and saturation

- Estimated annual turnover of equipment based on past experience and energy consumption questionnaire data

- Market barriers taken into account by model
  - Limited potential units to replace
  - Incentive program knowledge of customers
  - Potential benefits to customer
  - Program design/delivery
  - Lack of motivation to change system/apply for incentives

Achievable Potential Affected by Codes & Standards

▸ Considered upcoming changes in building/system codes
  ▸ AFUE
  ▸ Lighting
  ▸ Building Envelope
  ▸ DHW

▸ Used TRM assumptions which already include upcoming baseline shifts for certain technologies
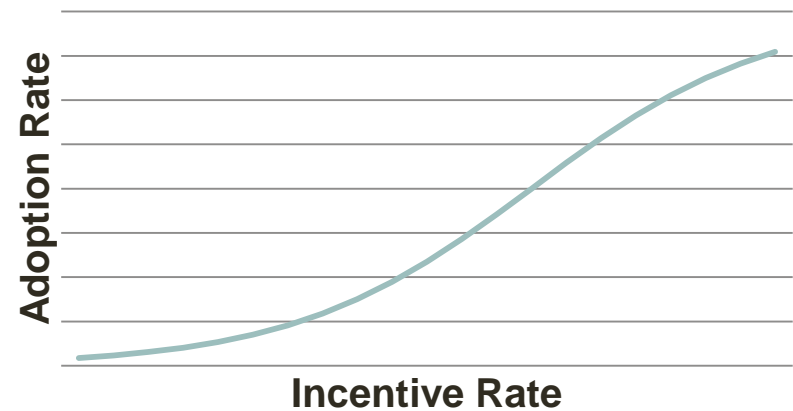
Maximum & Program Achievable

▶ Based on available funding for 2014-2019

▶ Developed both end-of-life and retrofit S-Curves based on past program performance as well as other studies

▶ Incentives based on DCEO rates for each program

▶ Potential based on number of measures adopted each year

End-of-Life
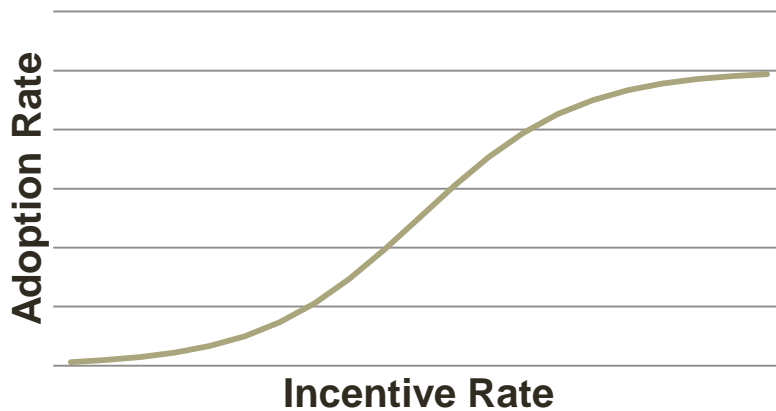
Retrofit

Achievable Example:
Public Sector Boiler Replacement

‣ Boiler Lifetime – 35 years

‣ Annual Natural Market Replacement – 3%

‣ Based on past program data expect to
  ‣ At 50% incentive rate expect:
    ‣ 0.2% Retrofits
    ‣ 25.0% EOL
  ‣ At 80% incentive rate expect:
    ‣ 0.6% Retrofits
    ‣ 46.7% EOL

Maximum Achievable Example:
Public Sector Boiler Replacement

- Raise incentive to 100% of incremental cost
  - Expect to be able to provide incentives to 2.12% of market if budget not an issue

- Based on collected data there are 19,158 boilers can be upgraded

- Expect to be able to provide incentives for
  - Replacing 406 boilers
  - Resulting in 2.2 million therms saved

- Cost of $12.7 million in incentives alone

Program Achievable Example: Public Sector Boiler Replacement

- Current incentive is set at 90% of incremental cost
  - Expect to be able to provide incentives to 2.04% of market if budget not an issue

- Based on budget constraints, expect to be able to provide incentives for
  - Replacing 70 boilers
 - Resulting in 0.38 million therms saved

Maximum & Program Achievable

- Calculated for DCEO programs in
  - Public Sector
    - Prescriptive Measures
    - Custom Measures
  - Low Income Sector
    - EEAHCP
    - Weatherization
    - PHA
    - Energy Savers

- Six year time horizon of 2014-2019
  - Inform current planning period (2014-2016)
  - Inform next planning period (2017-2019)

Achievable Results – Public Sector

Year	2014	2015	2016	2017	2018	2019
Maximum Electric Achievable Potential %	3.03%	3.08%	2.99%	3.06%	3.11%	3.15%
Maximum Natural Gas Achievable Potential %	1.90%	1.93%	1.93%	1.93%	1.93%	1.93%
Program Electric Achievable Potential %	1.00%	1.02%	0.99%	1.01%	1.03%	1.04%
Program Natural Gas Achievable Potential %	0.68%	0.69%	0.69%	0.69%	0.69%	0.69%

Year	2014	2015	2016	2017	2018	2019
Cumulative Maximum Electric Achievable Potential %	3.03%	6.11%	9.10%	12.16%	15.27%	18.42%
Cumulative Maximum Natural Gas Achievable Potential %	1.90%	3.83%	5.76%	7.69%	9.62%	11.55%
Cumulative Program Electric Achievable Potential %	1.00%	2.02%	3.01%	4.02%	5.05%	6.10%
Cumulative Program Natural Gas Achievable Potential %	0.68%	1.37%	2.06%	2.75%	3.43%	4.12%
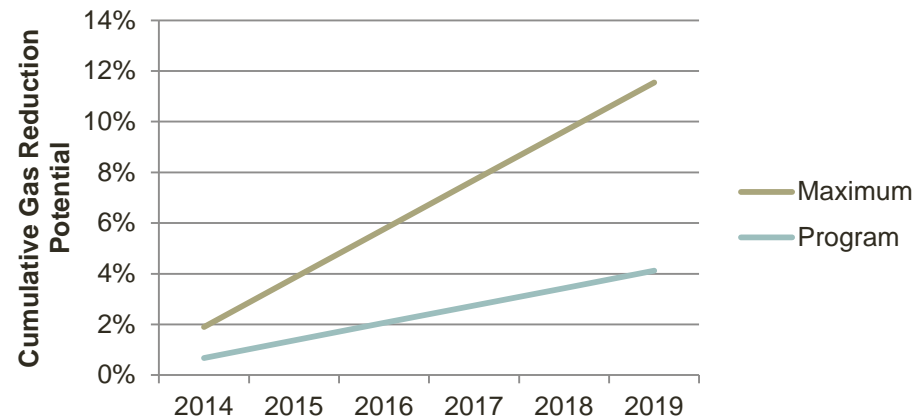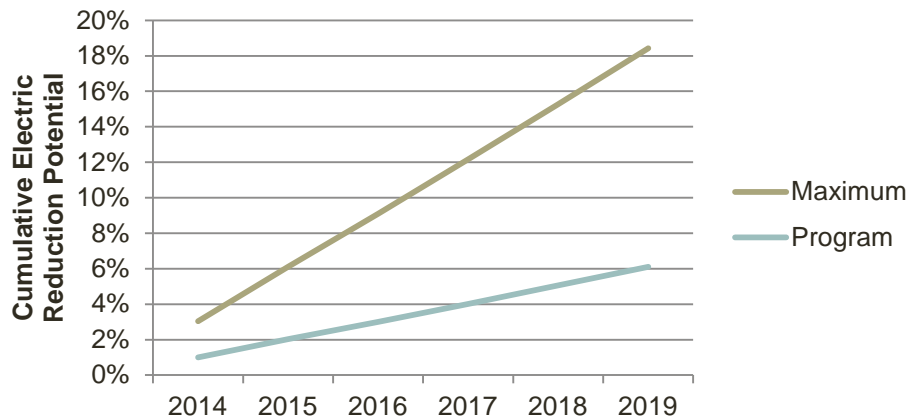
Achievable Results – Low-Income

Year	2014	2015	2016	2017	2018	2019
Maximum Electric Achievable Potential %	3.13%	3.13%	3.13%	3.13%	3.13%	3.13%
Maximum Natural Gas Achievable Potential %	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Program Electric Achievable Potential %	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%
Program Natural Gas Achievable Potential %	0.11%	0.11%	0.11%	0.11%	0.11%	0.11%

Year	2014	2015	2016	2017	2018	2019
Cumulative Maximum Electric Achievable Potential %	3.13%	6.26%	9.39%	12.52%	15.64%	18.77%
Cumulative Maximum Natural Gas Achievable Potential %	1.50%	3.01%	4.51%	6.01%	7.52%	9.02%
Cumulative Program Electric Achievable Potential %	0.23%	0.45%	0.68%	0.91%	1.14%	1.36%
Cumulative Program Natural Gas Achievable Potential %	0.11%	0.22%	0.33%	0.44%	0.55%	0.66%

Questions?