

Kingston General Hospital

Conservation and Demand Management Plan

Allan McLuskie, P.Eng, Director Facilities Operations
June 2014



FORWARD BY CEO

At KGH we believe it is incumbent upon health care providers to take a leadership role in reducing our carbon footprint and thereby contributing to the overall health of the planet and the health of our community, including current and future patients.

One of KGH 2015 outcomes as laid out in its Strategic plan is to be “clean, **green** and carpet free”.

I approve this Conservation and Demand Management Plan.

A handwritten signature in black ink, appearing to read "Leslee Thompson". The signature is fluid and cursive, with a long, sweeping tail on the right side.

Leslee Thompson
President and Chief Executive Officer
Kingston General Hospital

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BACKGROUND

At KGH we believe it is incumbent upon health care providers to take a leadership role in reducing our carbon footprint and thereby contributing to the overall health of the planet and the health of our community, including current and future patients. Kingston General Hospital is a 1.228 million square foot acute care hospital located in Kingston, Ontario. Our recycling programs, cleaning products and purchasing policies are highly effective, reflective of a culture of sustainability that is reinforced through communications and our actions.

In 2010 KGH embarked on the first phase of an energy project which involved a \$10.5 million retrofit to our infrastructure. In 2013 we embarked on a further \$819,000 second phase energy project. These projects have netted over \$800,000 in energy savings and reduced our carbon footprint by over 14 percent. This has made us one of the most energy efficient acute care hospitals in the country. This plan will outline our achievements to date and our plans for the future.

GOALS AND OBJECTIVES

One of KGH 2015 outcomes as laid out in its Strategic plan is to be “clean, **green** and carpet free”. To this end we have set a goal to achieve a gold standard for the OHA’s Green Hospital Scorecard. The Green Hospital Scorecard is a new benchmarking and recognition program which aims to reflect hospitals' environmental performance as indicated by their operations, management, and policies. As a vehicle for hospitals to assess their environmental performance relative to peers, the program:

- Allows hospitals to benchmark their own year-over-year performance
- Allows comparative benchmarking against peer hospital performance
- Encourages improvement and leadership through a recognition program

The Green Hospital Scorecard shows hospitals environmental performance in five areas:

1. Energy
2. Waste
3. Water
4. Pollution Prevention
5. Corporate Leadership, planning, and management

More information on this program can be found on the Ontario Hospital Association (OHA) website at:

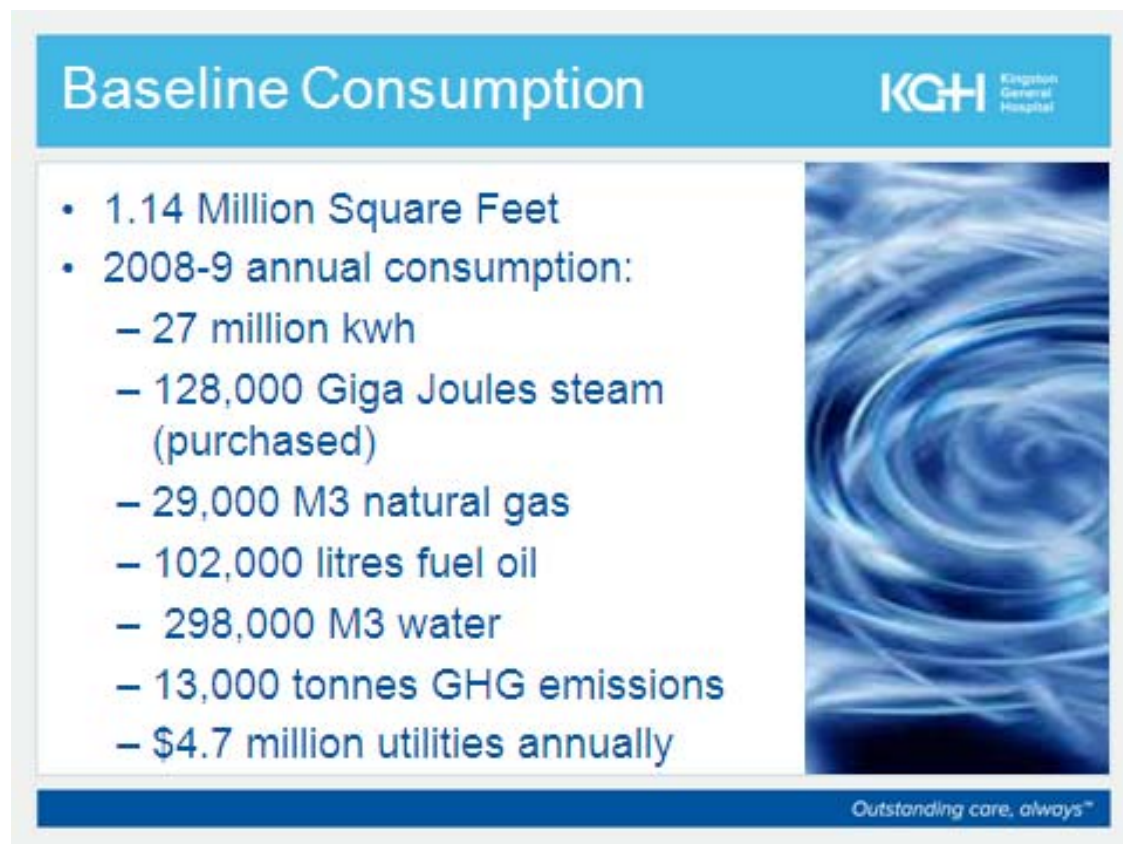
<http://www.oha.com/CurrentIssues/keyinitiatives/Green%20Healthcare/GreenHospitalScorecard/Pages/GreenHospitalScorecard.aspx>

We also participate in the Greening Healthcare Coalition which sets targets for hospitals to be included in the top 25 percentile amongst their peer acute care hospitals. We submit our energy and water data monthly and receive up to date feedback on our performance. The Greening Healthcare Website can be found at:

<http://www.trca.on.ca/the-living-city/programs-of-the-living-city/greening-health-care.dot>

OUR BASELINE

The baseline for our energy project was taken as the 2008-09 fiscal year:



The slide features a blue header with the title 'Baseline Consumption' and the KGH logo (Kingston General Hospital). The main content is a bulleted list of energy and water consumption metrics for 2008-9. To the right of the list is a vertical image of blue water ripples. At the bottom right, the slogan 'Outstanding care, always™' is displayed.

Category	Value
Area	1.14 Million Square Feet
Annual Consumption (2008-9)	27 million kwh
Annual Consumption (2008-9)	128,000 Giga Joules steam (purchased)
Annual Consumption (2008-9)	29,000 M3 natural gas
Annual Consumption (2008-9)	102,000 litres fuel oil
Annual Consumption (2008-9)	298,000 M3 water
Annual Consumption (2008-9)	13,000 tonnes GHG emissions
Annual Consumption (2008-9)	\$4.7 million utilities annually

TECHNICAL MEASURES TAKEN TO DATE

Attached as Annex B to this plan are the detailed measures taken since 2010 to reduce our energy consumption and demand. In summary these measures included:

- Upgraded lighting system to energy efficient alternatives
- Expansion of building automation system
- Upgrades to the chiller plant
- Weather-sealing of all buildings
- Replacement of more than 250 windows in our historic 175 year old Watkins Wing
- Upgrading mechanical systems
- Replacement of air handling systems
- Installation of hot water condensing boilers
- Replacement of 10 oil-fired boilers with new high-efficiency gas-fired models
- Thermal piping insulation
- Installing computer sleep mode on 1250 computers

We also implemented numerous process changes to enhance our savings:

- Occupancy sensors and ventilation setbacks require occupants to be aware of how their ventilation and temperature settings work and make very minor adjustments to work procedures (i.e. it may take a few minutes for an area to warm up if arriving during a non-scheduled period).
- Less need to open windows or use space heaters to control temperatures
- Better control on chiller sequences to optimize energy usage
- Expansion of building automation system and improved data capture allows analysis of building HVAC processes and performance efficiency.

BEHAVIOURAL MEASURES TAKEN TO DATE;
ENGAGEMENT OF STAFF, PATIENTS AND VISITORS

- KGH has taken a leadership role in the health-care sector by launching an innovative energy conservation campaign entitled 'Energy Matters'.
- Patients, the public and staff are also encouraged to get involved via the Energy Matters website (<http://www.kgh.myenergymatters.net>); and to take part in on-site Energy Matters Challenges. These work to reduce energy use and raise awareness within different departments via a challenge for one department to reduce their energy use more than another.
- The following list of activities has formed the basis of KGH's ongoing communication and awareness program:
 - Introductory project announcement to staff
 - Information sessions for facility staff
 - Project kickoff - 'Energy Day'
 - Media release to local media outlets
 - Energy Matters website launch (image on page 9)
 - Monthly website updates
 - Earth Day events (ongoing)
 - Energy awareness staff survey
 - Commonly asked questions
 - Lighting posters
 - Fan control signage
 - Energy challenge survey and Energy team sign-up
 - Department Energy Challenge (ongoing)
 - Water awareness campaign
 - Lighting stickers (in progress)
 - Communications/articles in KGH's internal communications vehicles, newsletters, etc. (ongoing)



Welcome to Kingston General Hospital, Energy Matters site.



We are excited to bring you new features and articles that will be updated frequently that will engage you and help you in living and working sustainable way. Monthly tips, and news that will hopefully inspire or assist in your daily lives, and even feedback for you to share your tips and thoughts for your hospital co-workers!

Look forward to seeing you here often!

TIP OF THE MONTH

Joining Earth Hour is as simple as turning off your lights!

Get involved with Earth Hour on Saturday March 29th at 8:30pm!

read on...

RESOURCES

	Calculate your children's school travel footprint #
	Practical Energy Reduction Tips
	Incentives and Rebates
	More links

PROGRAM STATUS

See the status of all the retrofit and renewal programs in your area, with our easy to use [Renewal Status Map](#).

Find out about the benefits of an Energy Renewal Program.

See all the Facilities upgrade stats here at the [Facility Renewal Program List](#).



WHAT'S UP

Earth Hour March 29, 2014



Get prepared for event at Saturday, March 29 8:30 local time, 2014.

[read on...#](#)

Earth Day April 22, 2014



What are your plans for Earth Day? Check out the link for some ideas.

[read on...#](#)

LEADERSHIP ROLE OF KGH

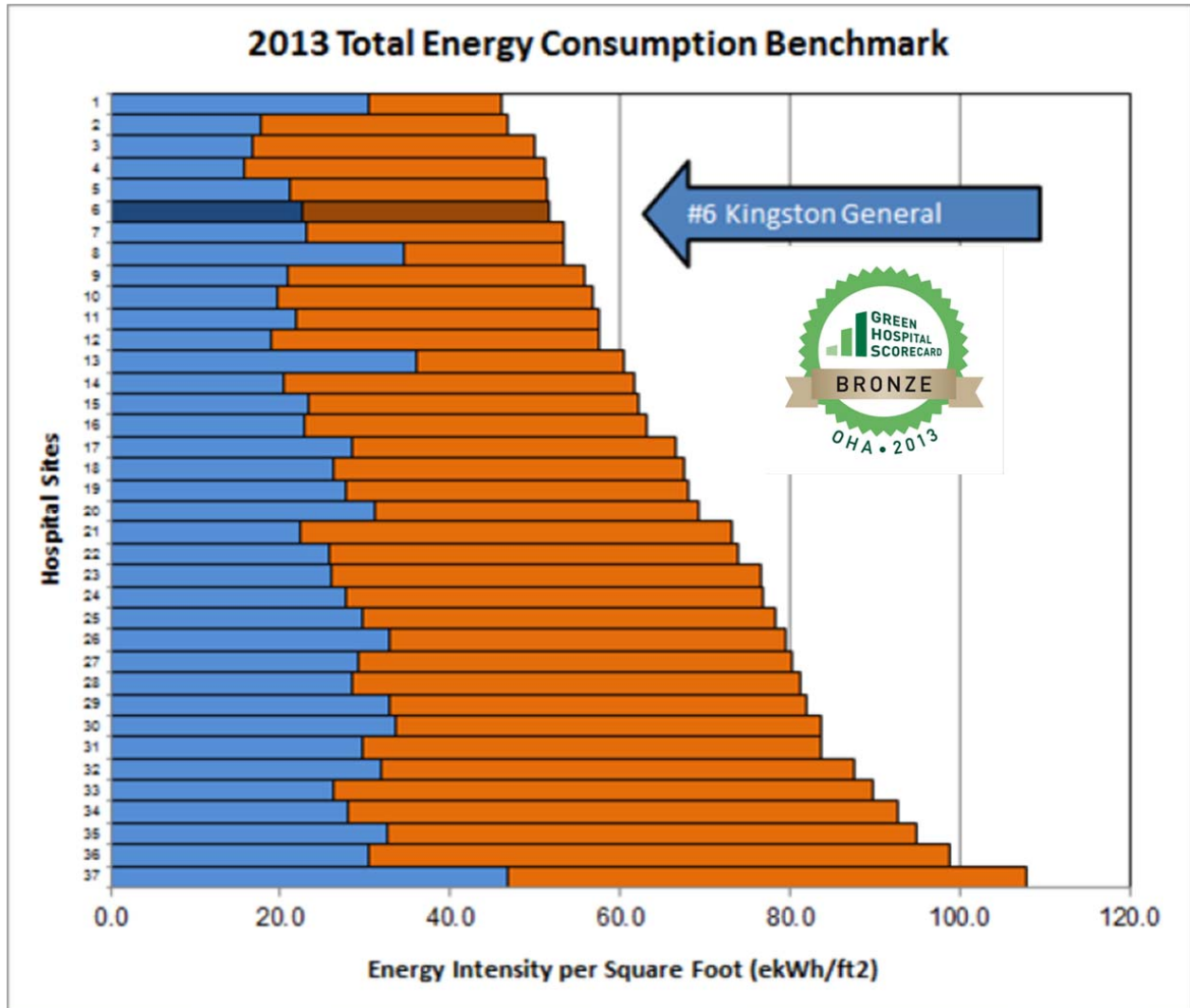
- Since beginning its journey toward lowering energy and operating costs back in 2006, KGH has lowered energy use by 14.4 %. This achievement was recognized by the Toronto & Region Conservation Authority (Greening Healthcare Group) who, in 2010, awarded KGH with the 5 percent Club designation which shows KGH's energy used was lowered by more than 5 % since 2006.
- KGH participated in a Save On Energy testimonial video sponsored by the Ontario Power Authority and Utilities Kingston (showcasing the \$460,000 incentives that KGH collected from the program). The links below are a video we created as well as a case study to help promote other hospitals and organizations to take advantage of the program:

https://saveonenergy.ca/getattachment/Business/TESTIMONIALS/CaseStudy_KingstonHospital_v2_OH.pdf.aspx

<https://saveonenergy.ca/Business/Program-Overviews/TESTIMONIALS/Kingston-General-Hospital>

- We are one of the only hospitals in the country to introduce computer sleep mode on 1250 computers, saving \$34,000 per year in energy. With Hydro incentives the payback on investment was very short. This success story was showcased at the Greening Healthcare Conference in May 2014. The presentation included KGH Facilities and IT staff and the software vendor.
- We have shared our results at numerous forums such as Canadian Healthcare Engineering Society, Greening Healthcare Coalition, Save on Energy Website, Canadian College of Health Leaders, Kingston Institutional Energy Efficiency Sharing Session.
- In February of 2014 KGH was awarded a Bronze award for the Green Hospital Scorecard.

- In 2013, KGH was the 6th most energy efficient acute care hospital (per sq. ft.) out of the 37 hospitals sites participating in the Greening Health Care Database.



ACHIEVEMENTS TO DATE

The results of these measures can be summarized in the following table:

Utility	Unit of Measure	BaseLine 2008-09	<u>Phase 1 Savings (2013)</u>		<u>Phase 2 Savings (2014)</u>		<u>Combined Phase 1 and 2 Savings</u>		Overall % Saved
			Quantities Saved	\$ Saved	Quantities Saved	\$ Saved	Quantities Saved	\$ Saved	
Water	m3/yr	297,629	75,960	\$88,556			75,960	\$88,556	25.5%
Electricity Usage	kwh/yr	27,026,502	2,308,011	\$196,543	1,128,194	\$98,717	3,436,205	\$295,260	12.7%
Electricity Deman	kw per year	14,641	333	\$60,000			333	\$60,000	2.3%
Steam	GJ/yr	127,653	24,419	\$428,132	5,196	\$78,808	29,615	\$506,940	23.2%
Gas	m3/ yr	28,739	(329,798)	(\$130,535)			(329,798)	(\$130,535)	-1147.6%
Fuel Oil	L/yr	102,383	96,892	\$84,372			96,892	\$84,372	94.6%
Elec/ Steam/ Gas/ Oil	GJ/Yr	230,085	23,930		9,257		33,188		14.4%
Elec/ Steam/ Gas/ Oil	eKwh	63,912,501	6,647,306		2,571,528		9,218,834		
Building area	Sq.Ft.	1,139,036	1,228,320		1,228,320		1,228,320		
	ekwh/sq.ft	56.1		-		-			
Total utility savings=				\$638,512		\$177,525		\$816,037	

The above guaranteed savings for Phase 1 and 2 have been verified by the Honeywell Energy and Operational Cost Saving reports dated August 2013 and February 2014. The 14.4% reduction in energy use is equivalent to 6,354,000 kg of CO₂ per year. This is also equivalent to 1338 passenger vehicles removed from the highway (2.7 million liters of gasoline) or enough electricity to supply 834 homes for one year

2013 ENERGY CONSUMPTION AND GREENHOUSE GAS REPORT

January-2013 to December-2013	<u>Energy Consumption and Greenhouse Gas Emissions Reporting - for 2013</u>											
Public Hospital												
Acute												
Kingston General Hospital												
Operation Type	Address	City	Postal Code	Total Floor Area of the Indoor Space in which Operation is Conducted		Average # Hours Per Week	Energy Type and Amount Purchased and Consumed in Natural Units					
							Electricity		Natural Gas		District Heating	
				Total Floor Area	Unit1		Electricity	Unit2	Natural Gas	Unit3	District Heat	Unit9
Facilities used for hospital purposes	76 Stuart Street	Kingston	K7L 2V7	1,136,196	Square feet	168	25,523,599	kWh	6,254.8	Cubic meter	135,701	Giga Joule - steam or hot water
Administrative offices and related facilities	76 Stuart Street	Kingston	K7L 2V7	92,124	Square feet	65	1,343,347	kWh	329.2	Cubic meter	7,142	Giga Joule - steam or hot water

Note: Information on 2011 and 2012 emissions are available at:

<http://www.kgh.on.ca/en/aboutkgh/strategyandperformance/Energy%20Performance/Pages/Energy%20Performance.aspx>

MEASURES PLANNED

Following is an excerpt from the 2013 Annual Report from the Greening Healthcare Coalition:



Your 2013 Energy Performance:

With overall energy savings for 2013, (see second page of this report) Kingston General Hospital remains one of the most efficient acute care hospitals of the Greening Health Care database. Moderate percentage savings potential is forecast as indicated below.

Savings Potential \$/year:

Electricity	\$282,881
Steam	\$60,168

To achieve the top 25 percentile of our peer acute care hospitals Greening Healthcare Coalition has set the following targets:

Hospital	Electricity (kWh/ft2)				Thermal (ekWh/ft2)				Total Energy (ekWh/ft2)		Savings Potential	
	Base		Cooling		Base		Heating		Actual	Target	%	Cost
	Actual	Target	Actual	Target	Actual	Target	Actual	Target				
Kingston General Hospital	18.4	18.4	4.2	2.3	17.8	16.1	11.4	11.8	51.7	48.5	6.1%	\$343,049

<u>MEASURES PLANNED</u>			
BUILDING	COST SAVING MEASURES (CSMS)	SAVINGS	ESTIMATED COST
ALL	COOLING EFFICIENCIES	\$ 280,000	\$1,400,000
ALL	BASE THERMAL LOAD	\$ 60,000	\$ 300,000
ALL	UPGRADE LIGHTING TO LED	\$ 50,000	\$ 250,000
ALL	MISC UPGRADES	\$ 50,000	\$ 250,000
	TOTAL =	\$ 440,000	\$2,200,000

Note: 1. It is anticipated that a redevelopment of the KGH footprint will occur in the next 7 years. When this happens we will be replacing 140,000 square feet of aging infrastructure with LEED Silver or greater energy technology.

2. Estimated costs are for planning purposes and are subject to change based on technical and business case review.

RENEWABLE ENERGY

KGH is a founding partner in the Kingston Regional Hospital Laundry (KRHL). We recently supported the installation of a 156 kw solar panel system on the roof of the facility.

KGH has a project deferred from our Phase 1 Energy Project to install solar panels on the roof the Kidd Wing of the hospital. The project had a capital cost of \$843K and an electrical savings of \$75K. This project remains under review awaiting more favorable financial and business conditions before proceeding.

There are no other renewable energy projects planned at this time.

Annex A

PHASE 1 ENERGY PROJECT

BUILDING	COST SAVING MEASURES (CSMS)	SAVINGS
Angada	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 2,332
Angada	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 260
Angada	CSM C1: Expand / Upgrade DDC Automation System	\$ 235
Angada	CSM C2: Upgrade / Re-commission controls for energy efficiency	\$ 506
Angada	CSM C4: Schedule HVAC Systems to Match Occupancy	\$ 2,470
Angada	CSM W1: Domestic Water Use Reduction	\$ 1,217
Angada	CSM B1: Building Envelope (seal leaks)	\$ 40
Ann Baillie	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 458
Ann Baillie	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 135
Ann Baillie	CSM C4: Schedule HVAC Systems to Match Occupancy	\$ 1,164
Ann Baillie	CSM M11: Install Thermostatic Control Valves on Radiators	\$ 3,072
Ann Baillie	CSM W1: Domestic Water Use Reduction	\$ 268
Ann Baillie	CSM B1: Building Envelope (seal leaks)	\$ 317
Connell	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 4,294
Connell	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 4,414
Connell	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 4,157
Connell	CSM L4: Install occupancy sensors or digital time switches	\$ 154
Connell	CSM L5: New Fixture Re-Design	\$ 353
Connell	CSM C1: Expand / Upgrade DDC Automation System	\$ 3,954
Connell	CSM M4: Convert 100% fresh air system to mixed air	\$ 48,052
Connell	CSM M5: Replace existing AHU's	\$ 15,372
Connell	CSM M10: ORs Retrofit	\$ 70,692
Connell	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 43,878
Connell	CSM P3: Piping / Equipment Insulation	\$ 5,670
Connell	CSM W1: Domestic Water Use Reduction	\$ 23,758
Connell	CSM B1: Building Envelope (seal leaks)	\$ 768
Davies	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 3,058
Davies	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 1,726
Davies	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 1,970
Davies	CSM C4: Schedule HVAC Systems to Match Occupancy	\$ 31,558
Davies	CSM M13: Install Variable Frequency Drives & HE Motors	\$ 3,162
Davies	CSM P3: Piping / Equipment Insulation	\$ 2,837
Davies	CSM W1: Domestic Water Use Reduction	\$ 15,727
Davies	CSM W4: Convert city water equipment to closed loop	\$ 3,619
Davies	CSM B1: Building Envelope (seal leaks)	\$ 184
Dietary	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 1,401
Dietary	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 511
Dietary	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 960
Dietary	CSM L5: New Fixture Re-Design	\$ 192
Dietary	CSM C4: Schedule HVAC Systems to Match Occupancy	\$ 20,250
Dietary	CSM P3: Piping / Equipment Insulation	\$ 749
Dietary	CSM W1: Domestic Water Use Reduction	\$ 2,379
Dietary	CSM B1: Building Envelope (seal leaks)	\$ 959
Doran	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 412
Doran	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 126
Doran	CSM C4: Schedule HVAC Systems to Match Occupancy	\$ 5,670
Doran	CSM M1: Convert CV Systems to VAV	\$ 575
Doran	CSM P3: Piping / Equipment Insulation	\$ 506
Doran	CSM W1: Domestic Water Use Reduction	\$ 2,301
Douglas	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 1,163
Douglas	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 859
Douglas	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 4,931

BUILDING	COST SAVING MEASURES (CSMS)	SAVINGS
Douglas	CSM L5: New Fixture Re-Design	\$ 325
Douglas	CSM M2: Install zone dampers and VSD's to match airflow with occupancy	\$ 29,634
Douglas	CSM P3: Piping / Equipment Insulation	\$ 568
Douglas	CSM W1: Domestic Water Use Reduction	\$ 2,995
Douglas	CSM B1: Building Envelope (seal leaks)	\$ 679
Empire	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 244
Empire	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 105
Empire	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 681
Empire	CSM W1: Domestic Water Use Reduction	\$ 939
Empire	CSM B1: Building Envelope (seal leaks)	\$ 898
FAPC	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 94
FAPC	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 2,096
FAPC	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 122
FAPC	CSM C4: Schedule HVAC Systems to Match Occupancy	\$ 42,847
FAPC	CSM P3: Piping / Equipment Insulation	\$ 2,898
FAPC	CSM W1: Domestic Water Use Reduction	\$ 5,704
FAPC	CSM B1: Building Envelope (seal leaks)	\$ 78
GIDRU	CSM M9: Heat Recovery Systems	\$ 1,461
GIDRU	CSM P3: Piping / Equipment Insulation	\$ 1,559
GIDRU	CSM W1: Domestic Water Use Reduction	\$ 15
GIDRU	CSM B1: Building Envelope (seal leaks)	\$ 104
Kidd	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 4,828
Kidd	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 4,185
Kidd	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 4,599
Kidd	CSM L4: Install occupancy sensors or digital time switches	\$ 472
Kidd	CSM L5: New Fixture Re-Design	\$ 206
Kidd	CSM C7: Modify Cooling Plant Operations	\$ 19,599
Kidd	CSM M2: Install zone dampers and VSD's to match airflow with occupancy	\$ 8,500
Kidd	CSM M10: ORs Retrofit	\$ 22,358
Kidd	CSM M13: Install Variable Frequency Drives & HE Motors	\$ 24,461
Kidd	CSM P3: Piping / Equipment Insulation	\$ 8,564
Kidd	CSM W1: Domestic Water Use Reduction	\$ 17,708
Kidd	CSM B1: Building Envelope (seal leaks)	\$ 588
Nickle	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 548
Nickle	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 1,295
Nickle	CSM P3: Piping / Equipment Insulation	\$ 1,133
Nickle	CSM W1: Domestic Water Use Reduction	\$ 839
Nickle	CSM B1: Building Envelope (seal leaks)	\$ 527
Tunnel	CSM P3: Piping / Equipment Insulation	\$ 2,468
Victory	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 301
Victory	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 3,026
Victory	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 800
Victory	CSM L4: Install occupancy sensors or digital time switches	\$ 90
Victory	CSM P3: Piping / Equipment Insulation	\$ 2,658
Victory	CSM W1: Domestic Water Use Reduction	\$ 8,248
Victory	CSM B1: Building Envelope (seal leaks)	\$ 40
Watkins	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 1,558
Watkins	CSM L2: Relamp and Reballast Existing T8 Magnetic Fluorescent Fixtures	\$ 476
Watkins	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 1,139
Watkins	CSM L4: Install occupancy sensors or digital time switches	\$ 61
Watkins	CSM M5: Replace existing AHU's	\$ 7,706
Watkins	CSM W1: Domestic Water Use Reduction	\$ 2,472
Watkins	CSM B2: Replace existing windows / add new windows	\$ 11,392
100 Stuart St	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 104

BUILDING	COST SAVING MEASURES (CSMS)	SAVINGS
100 Stuart St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 4,480
100 Stuart St.	CSM W1: Domestic Water Use Reduction	\$ 303
100 Stuart St.	CSM B1: Building Envelope (seal leaks)	\$ 490
102 Stuart St.	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 701
102 Stuart St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 6,430
102 Stuart St.	CSM W1: Domestic Water Use Reduction	\$ 216
102 Stuart St.	CSM B1: Building Envelope (seal leaks)	\$ 377
20 Barrie St.	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 180
20 Barrie St.	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 30
20 Barrie St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 4,447
20 Barrie St.	CSM W1: Domestic Water Use Reduction	\$ 134
20 Barrie St.	CSM B1: Building Envelope (seal leaks)	\$ 301
22/24 Barrie St.	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 370
22/24 Barrie St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 6,482
22/24 Barrie St.	CSM W1: Domestic Water Use Reduction	\$ 323
22/24 Barrie St.	CSM B1: Building Envelope (seal leaks)	\$ 816
26 Barrie St.	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 239
26 Barrie St.	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 12
26 Barrie St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 5,589
26 Barrie St.	CSM W1: Domestic Water Use Reduction	\$ 84
26 Barrie St.	CSM B1: Building Envelope (seal leaks)	\$ 317
28 Barrie St.	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 38
28 Barrie St.	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 24
28 Barrie St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 3,572
28 Barrie St.	CSM W1: Domestic Water Use Reduction	\$ 94
28 Barrie St.	CSM B1: Building Envelope (seal leaks)	\$ 263
34 Barrie St.	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 147
34 Barrie St.	CSM W1: Domestic Water Use Reduction	\$ 85
34 Barrie St.	CSM B1: Building Envelope (seal leaks)	\$ 738
62 Barrie St.	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 46
62 Barrie St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 3,132
62 Barrie St.	CSM W1: Domestic Water Use Reduction	\$ 114
62 Barrie St.	CSM B1: Building Envelope (seal leaks)	\$ 434
68 Barrie St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 4,383
68 Barrie St.	CSM W1: Domestic Water Use Reduction	\$ 253
68 Barrie St.	CSM B1: Building Envelope (seal leaks)	\$ 340
70 Barrie St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 4,601
70 Barrie St.	CSM W1: Domestic Water Use Reduction	\$ 71
70 Barrie St.	CSM B1: Building Envelope (seal leaks)	\$ 375
72 Barrie St.	CSM L1: Relamp and Reballast Existing T12 Magnetic Fluorescent Fixtures	\$ 341
72 Barrie St.	CSM L3: Relamp and Reballast Existing T8 Electronic Fluorescent Fixtures	\$ 19
72 Barrie St.	CSM P1: Upgrade / Modify Heating Plant Equipment	\$ 9,253
72 Barrie St.	CSM W1: Domestic Water Use Reduction	\$ 213
72 Barrie St.	CSM B1: Building Envelope (seal leaks)	\$ 766
TOTAL SAVINGS =		\$ 664,393

PHASE 2 ENERGY PROJECT		
BUILDING	COST SAVING MEASURES (CSMS)	SAVINGS
Burr	CSM-1 Install Zone Dampers	\$ 67,990
Burr	CSM-2 Schedule AHU's to Match Occupancy	\$ 51,469
Burr	CSM-3 Reduce VFD Speed to Match Occupancy	\$ 18,051
Burr	CSM-5 Install Computer Sleep Mode Software	\$ 34,070
Burr	CSM-9 Replace Windows Watkins Wing	\$ 5,945
	TOTAL SAVINGS =	\$ 177,525