

The Corporation of the Town of Cobourg
Water Pollution Control Plant #1

Energy Audit

February 4, 2013

Unit Name	Motor Name	HP	Power Usage				Cont, VFD or Timed ²	Run Time hrs/day	Power Consumption			Time of Use			Cost of Use			Total Cost
			Volts	Amps	PF ¹	RPM			Power Consumption kWhr/day	Peak Hrs/day	Mid Hrs/day	Off Hrs Hrs/day	Peak \$/kWhr	Middle \$/kWhr	Off Peak \$/kWhr	\$/year		
Aeration HSI Blower #1	HSI	200	575	176.0	0.885	3565	Cont	24	3,722.91	8.0	8.0	8.0	0.118	0.099	0.063	\$126,827		
Aeration HSI Blower #2	HSI	200	575	95.0	0.885	3084	VFD	24	2,009.53	8.0	8.0	8.0	0.118	0.099	0.063	\$68,458		
Aeration HSI Blower #3	HSI	200	575	95.0	0.885	3084	VFD	24	2,009.53	8.0	8.0	8.0	0.118	0.099	0.063	\$68,458		
		93	575	92.0	0.885	2000	VFD	24	1,946.07	8.0	8.0	8.0	0.118	0.099	0.063	\$66,296		
Digester Mixer - Std Operation	Techo	60	575	54.0	0.885	1180	Cont	24	1,142.26	8.0	8.0	8.0	0.118	0.099	0.063	\$38,913		
Digester Mixer - Timer Mode	Techo	60	575	54.0	0.885	1180	Var	20	951.88	7.0	7.0	7.0	0.118	0.099	0.063	\$34,049		
																\$0		
Surface Aerator #1 (Old)	Leeson	50	575	48.2	0.885	1160	Cont	24	1,019.57	8.0	8.0	8.0	0.118	0.099	0.063	\$34,733		
Surface Aerator #2 (Old)	Leeson	50	575	48.2	0.885	1160	Cont	24	1,019.57	8.0	8.0	8.0	0.118	0.099	0.063	\$34,733		
Surface Aerator #3 (Old)	Leeson	50	575	48.2	0.885	1160	Cont	24	1,019.57	8.0	8.0	8.0	0.118	0.099	0.063	\$34,733		
Surface Aerator #4 (Old)	Leeson	50	575	48.2	0.885	1160	Cont	24	1,019.57	8.0	8.0	8.0	0.118	0.099	0.063	\$34,733		
Surface Aerator #5 (Old)	Leeson	50	575	48.2	0.885	1160	Cont	24	1,019.57	8.0	8.0	8.0	0.118	0.099	0.063	\$34,733		
Surface Aerator #6 (Old)	Leeson	50	575	48.2	0.885	1160	Cont	24	1,019.57	8.0	8.0	8.0	0.118	0.099	0.063	\$34,733		
																\$0		
Screw Pump #1	World Motor	30	575	28.4	0.885	1180	Cont	24	600.74	8.0	8.0	8.0	0.118	0.099	0.063	\$20,465		
Screw Pump #2	Emsco	30	575	29.0	0.885	1170	Cont	24	613.43	8.0	8.0	8.0	0.118	0.099	0.063	\$20,898		
Screw Pump #3	Weg	30	575	28.3	0.885	1175	Cont	24	598.63	8.0	8.0	8.0	0.118	0.099	0.063	\$20,393		
																\$0		
Sludge Transfer Pump	Emsco	7.5	575	7.4	0.885	1740	Cont	4	26.09	4.0	0.0	0.0	0.118	0.099	0.063	\$1,124		
Hx Pump	Emsco	5	575	5.1	0.885	1750	Cont	24	107.46	8.0	8.0	8.0	0.118	0.099	0.063	\$9,661		
																\$0		
Raw Sewage Pump #1	Teco	20	575	19.4	0.885	1170	Timed	4	68.39	3.4	3.3	3.3	0.118	0.099	0.063	\$5,840		
Raw Sewage Pump #2	Hansen	20	575	19.5	0.885	1170	Timed	4	68.75	3.4	3.3	3.3	0.118	0.099	0.063	\$5,870		

APPENDIX B

Raw Sewage Pump #3	Brook Cropmton	20	575	19.2	0.885	1170	Timed	4	67.69	3.4	3.3	3.3	0.118	0.099	0.063	\$5,780
Raw Sewage Pump #4	Hansen	20	575	19.5	0.885	1170	Timed	4	68.75	6.0	6.0	6.0	0.118	0.099	0.063	\$10,539
Fine Screen: Scroll	Envirocan	0.004	575	3.0	0.885	1755	Timed	4.5	11.86	6.0	6.0	6.0	0.118	0.099	0.063	\$1,616
Fine Screen: Grinder	Envirocan	5	575	5.2	0.885	1750	Timed	4.5	20.62	6.0	6.0	6.0	0.118	0.099	0.063	\$2,810
Fine Screen: Screen	Envirocan	1	575	1.4	0.885	1755	Timed	4.5	5.55	6.0	6.0	6.0	0.118	0.099	0.063	\$757
Fine Screen: Brush	Envirocan	1	575	1.4	0.885	1755	Timed	4.5	5.55	6.0	6.0	6.0	0.118	0.099	0.063	\$757
													0.118	0.099	0.063	\$0
Alum Pump #1	Max Motion	0.5	90	5.0	1	1750	Cont	24	18.71	8.0	8.0	8.0	0.118	0.099	0.063	\$637
Alum Pump #2	Electromec	0.5	90	5.0	1	1750	Cont	24	18.71	8.0	8.0	8.0	0.118	0.099	0.063	\$637
													0.118	0.099	0.063	\$0
Raw Sludge Pump #1	Vogelsang	5	575	5.6	0.76	1765	Timed	3.3	13.99	1.1	1.1	1.1	0.118	0.099	0.063	\$476
Raw Sludge Pump #2	Vogelsang	5	575	9.7	0.76	1765	Timed	3.3	24.23	1.1	1.1	1.1	0.118	0.099	0.063	\$825
													0.118	0.099	0.063	\$0
Thickener Wetwell Pump #1	Westinghouse		575	6.0	0.75	1145		4.0	17.93	1.4	1.3	1.3	0.118	0.099	0.063	\$615
Thickener Wetwell Pump #2	Westinghouse		575	6.0	0.75	1145	Timed	4.0	17.93	1.4	1.3	1.3	0.118	0.099	0.063	\$615
Thickener Sludge Pump #1	Baldor		575	6.0	0.73	1160	Timed	3.3	14.39	1.1	1.1	1.1	0.118	0.099	0.063	\$490
Thickener Sludge Pump #2	Baldor		575	6.0	0.73	1160	Timed	3.3	14.39	1.1	1.1	1.1	0.118	0.099	0.063	\$490
													0.118	0.099	0.063	\$0
Boiler Blower Motor		0.5	575	0.8	0.75	3450	Cont	9.0	5.38	3.0	3.0	3.0	0.118	0.099	0.063	\$183
													0.118	0.099	0.063	\$0
Tertiary Filter Pump #1 (T6)	Teco	25	575	23.3	0.83	1765	Cont	24.0	462.23	8.0	8.0	8.0	0.118	0.099	0.063	\$15,747
Tertiary Filter Pump #2 (T6)		25	575	23.3	0.83	1765	Cont	24.0	462.23	8.0	8.0	8.0	0.118	0.099	0.063	\$15,747
Tertiary Filter Pump #3 (T12)		25	575	23.3	0.83	1765	Cont	24.0	462.23	8.0	8.0	8.0	0.118	0.099	0.063	\$15,747

1 - PF - Power Factor

2 - Continuous Run, Timed or VFD

The Corporation of the Town of Cobourg
Water Pollution Control Plant #1

Energy Audit

February 4, 2013

Unit Name	Type	#	Power Usage		Contor Timed ²	Useage hrs/day	Power Consumption			Time of Use			Cost of Use			Total Cost \$/year
			Wattage				Power Consumption kWhr/day	Peak Hrs/day	Mid Hrs/day	Off Hrs Hrs/day	Peak \$/kWhr	Middle \$/kWhr	Off Peak \$/kWhr			
Admin Bldg - Upper Level	T8	85	32		Day Only	8	22	8	0	0	0.118	0.099	0.063	\$937.20		
	T8	11	32		Day Only	24	8	8	8	8	0.118	0.099	0.063	\$287.80		
														\$0.00		
Admin Bldg - Lower Level	T8	36	40		Day Only	24	35	8	0	0	0.118	0.099	0.063	\$496.17		
	T8	64	32		Day Only	24	49	8	0	0	0.118	0.099	0.063	\$705.66		
	T8	2	32		Cont	20	1	8	8	8	0.118	0.099	0.063	\$52.33		
Gallery	Incandescent	9	200		Day Only	5	11	6	0	0	0.118	0.099	0.063	\$465.16		
Headworks Bldg	T8	32	32		Day Only	5	6	6	0	0	0.118	0.099	0.063	\$264.62		
Biosolids Bldg	T8	16	40		Day Only	24	15	6	0	0	0.118	0.099	0.063	\$165.39		
Alum Bldg	T8	12	32		Day Only	24	9	6	0	0	0.118	0.099	0.063	\$99.23		
Boller Bldg	T8	36	32		Day Only	24	28	6	0	0	0.118	0.099	0.063	\$297.70		
Blower Bldg	T8	26	32		Motion Sensor	24	20	1	0	0	0.118	0.099	0.063	\$17.92		
SO2 Bldg	T8	4	32		Day Only	24	3	1	0	0	0.118	0.099	0.063	\$5.51		
Tertiary Filter Bldg	T8	34	32		Day Only		0	4	0	0	0.118	0.099	0.063	\$187.44		
Yard Lights (Metal Halide)	Metal-Halide	12	1500		Night Only	8	144	0	4	4	0.118	0.099	0.063	\$4,257.36		
Yard Lights (LED)	LED	13	150		Night Only	8	16	0	2	6	0.118	0.099	0.063	\$409.97		
Intermediate Bldg - Upper	T8	12	32		Day Only	24	9	4	0	0	0.118	0.099	0.063	\$66.16		
Intermediate Bldg - Lower	T8	20	32		Day Only	24	15	4	0	0	0.118	0.099	0.063	\$110.26		
Thickener Bldg	T8	14	40		Day Only	6	3	6	0	0	0.118	0.099	0.063	\$144.72		
											0.118	0.099	0.063	\$0.00		
											0.118	0.099	0.063	\$0.00		

1 - PF - Power Factor for Ballast

2 - Continuous Run, Timed or VFD

F - Fluorescent Tube

T8 - High Efficiency Fluorescent Tube

LED - Light Emitting Diode

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Water Pollution Control Plant #1

Energy Audit

February 4, 2013

Unit Name	Type	#	Power Usage		Temp Control	Useage hrs/day	Power Consumption	Time of Use			Cost of Use			Total Cost \$/year
			Wattage	PF ¹			Power Consumption	Peak	Mid	Off Hrs	Peak	Middle	Off Peak	
							kWhr/day	Hrs/day	Hrs/day	Hrs/day	\$/kWhr	\$/kWhr	\$/kWhr	
Admin Bldg - Upper Level	Restistance	1	2,000	1	Inter	8	16	4	2	2	0.118	0.099	0.063	\$581
Admin Bldg - Roof	HVAC	1	3,000	1	Inter	8	24	4	2	2	0.118	0.099	0.063	\$872
Admin Bldg - Lower Level	Baseboard	1	1,000	1	Inter	6	6	4	1	1	0.118	0.099	0.063	\$231
Headworks Bldg	Restistance	3	10,000	1	Temp	6	180	2	2	2	0.118	0.099	0.063	\$6,132
Thickener Bldg	Restistance	2	10,000	1	Temp	6	120	2	2	2	0.118	0.099	0.063	\$4,088
Chemical Storage Bldg	Restistance	2	10,000	1	Temp	6	120	2	2	2	0.118	0.099	0.063	\$4,088
Biosolids Bldg	Restistance	1	10,000	1	Temp	6	60	2	2	2	0.118	0.099	0.063	\$2,044
Intermediate Bldg	Restistance	2	10,000	1	Temp	6	120	2	2	2	0.118	0.099	0.063	\$4,088
Generator Bldg	Restistance	1	10,000	1	Temp	6	60	2	2	2	0.118	0.099	0.063	\$2,044
Aeration/Blower Bldg	Restistance	2	10,000	1	Temp	6	120	2	2	2	0.118	0.099	0.063	\$4,088
Dechlorination Bldg	Restistance	1	10,000	1	Temp	6	60	2	2	2	0.118	0.099	0.063	\$2,044
Filter Bldg	Restistance	3	10,000	1	Temp	6	180	2	2	2	0.118	0.099	0.063	\$6,132
				1							0.118	0.099	0.063	\$0
				1							0.118	0.099	0.063	\$0
				1										\$0
				1							0.118	0.099	0.063	\$0
				1							0.118	0.099	0.063	\$0
				1										\$0
				1							0.118	0.099	0.063	\$0
				1							0.118	0.099	0.063	\$0

- 1 - PF - Power Factor for Ballast
- 2 - Continuous Run, Timed or VFD
- F - Fluorescent Tube
- TB - High Efficiency Fluorescent Tube
- LED - Light Emitting Diode

Item	Lights	HVAC	Motors	Equipment	Total Cost
Headworks Bldg	\$265	\$6,132	\$7,007	\$5,940	\$19,344
Biosolids Bldg	\$165	\$2,044	\$34,049		\$36,258
Administrative Bldg	\$2,479	\$1,684			\$4,163
Chemical Storage Bldg	\$99	\$4,088	\$637		\$4,824
Intermediate Bldg	\$176	\$4,088	\$20,585		\$24,850
Boiler Bldg	\$298	\$0	\$183		\$481
Thickener Bldg	\$145	\$4,088	\$1,105		\$5,338
Blower Bldg	\$18	\$4,088	\$68,458		\$72,564
Filter Bldg	\$187	\$6,132	\$15,747		\$22,066
Dechlorination Bldg	\$6	\$2,044			\$2,050
Yard	\$410				\$410
Totals	\$4,248	\$34,388	\$147,772	\$5,940	

Annual Energy Cost:	\$192,348
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Average Cost Per Day:	\$527
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Past Energy Usage

Plant #1 - 2006

Item	Lights	HVAC	Motors	Equipment	Total Cost
Headworks Bldg	\$265	\$0	\$7,007	\$5,940	\$13,212
Biosolids Bldg	\$165	\$2,044	\$34,049		\$36,258
Administrative Bldg	\$496	\$812			\$1,309
Chemical Storage Bldg	\$99	\$4,088	\$637		\$4,824
Intermediate Bldg	\$176	\$4,088	\$41,171		\$45,435
Boiler Bldg	\$298	\$0	\$15,747		\$16,044
Thickener Bldg	\$145	\$4,088	\$1,105		\$5,338
Blower Bldg	\$0	\$4,088	\$208,400		\$212,488
Dechlorination Bldg	\$6	\$2,044			\$2,050
Yard	\$4,257				\$4,257
Filter Bldg	0	0	0	0	\$0

Total Energy Cost:

\$341,216

Energy Cost from 2012: \$192,348

Energy Cost from 2006: \$341,216

Difference: \$148,868

Percent Improvement: 43.6%

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2012

Press TAB to move to input areas. Press UP or DOWN AR			
Confirm consecutive 12-mth period (mth-yr to mth-yr)			
January 2012 to December 2012			
Sector	Municipal		
Agency Sub-sector	Municipality		
Organization Name	Town of Cobourg	Please fill in the mandatory fields indicated in red, in a	
Operation Name	Operation Type	Address	City
Stephenson Building	Administrative offices and related facilities, including municipal council chambers	2150 Yonge Street	Toronto
Public Works Offices and Shop	Administrative offices and related facilities, including municipal council chambers	390 King Street West	Cobourg
Market Building	Cultural facilities	201 Second Street	Cobourg
WWTP #2	Facilities related to the treatment of sewage	95 Normar Road	Cobourg
Marina	Administrative offices and related facilities, including municipal council chambers	147 Third Street	Cobourg
Victoria Hall	Administrative offices and related facilities, including municipal council chambers	55 King Street West	Cobourg
Parks Office	Storage facilities where equipment or vehicles are maintained, repaired or stored	740 Division Street, Unit 7	Cobourg
Fire Hall	Fire stations and associated offices and facilities	111 Elgin Street	Cobourg
Heenan Arena	Indoor ice rinks	206 Furnace Street	Cobourg
Memorial Arena	Indoor ice rinks	206 Furnace Street	Cobourg
WWTP #1	Facilities related to the treatment of sewage	420 King Street West	Cobourg
Rental Property (Cobourg Pipe Band)	Cultural facilities	612 D'Arcy Street	Cobourg
Police Service	Police stations and associated offices and facilities	107 King Street West	Cobourg
Economic Development / Tourism	Administrative offices and related facilities, including municipal council chambers	212 King Street West	Cobourg
Forth Street SPS	Facilities related to the pumping of sewage	178 Forth Street	Cobourg
Brook Road SPS	Facilities related to the pumping of sewage	451 Lakeshore Road	Cobourg
Monk's Cove SPS	Facilities related to the pumping of sewage	529 King Street West	Cobourg
McGill Street SPS	Facilities related to the treatment of sewage	138 Division Street	Cobourg
William Street Storm PS	Facilities related to the pumping of sewage	505 William Street	Cobourg
Division Street South Storm PS	Facilities related to the treatment of sewage	144 Division Street	Cobourg
Division Street North Storm PS	Facilities related to the pumping of sewage	519 Division Street	Cobourg
Community Centre Meeting Rooms	Community centres	750 D'Arcy Street	Cobourg
Community Centre Gym	Indoor sports arenas	750 D'Arcy Street	Cobourg
Community Centre Offices	Administrative offices and related facilities, including municipal council chambers	750 D'Arcy Street	Cobourg
Community Centre Practice Rink	Indoor ice rinks	750 D'Arcy Street	Cobourg
Community Centre Spectator Rink	Indoor ice rinks	750 D'Arcy Street	Cobourg

ddition to submitting data on your energy usage.

Postal Code	Total Floor Area	Unit	Avg hrs/wk	Annual Flow (Mega Litres)	Electricity		Natural Gas		Fuel Oil 1 & 2		Fuel Oil 4
					Quantity	Unit	Quantity	Unit	Quantity	Unit	Quantity
M7A 2G5	135,034.00	Square meters	70	23516.00224	2,181,065.00000	kWh	125,300.00000	Cubic meter			Litre
K9A 2N7	950.00	Square meters	40		93,163.00000	kWh	15,694.00000	Cubic Meter			
K9A 2M2	450.00	Square meters	25		26,043.00000	kWh	4,165.00000	Cubic Meter			
K9A 4J8	3,760.00	Square meters	168	1647.25000	1,596,521.00000	kWh	69,056.00000	Cubic Meter			
K9A 3L5	500.00	Square meters	60		107,152.00000	kWh	9,169.00000	Cubic Meter			
K9A 2M2	5,000.00	Square meters	55		1,160,844.00000	kWh	82,117.00000	Cubic Meter			
K9A 2N7	1,900.00	Square meters	40		42,891.00000	kWh	15,125.00000	Cubic Meter			
K9A 1A1	1,590.00	Square meters	168		100,713.00000	kWh	20,564.00000	Cubic Meter			
K9A 2G1	3,070.00	Square meters	65		281,632.00000	kWh	6,956.00000	Cubic Meter			
K9A 2G1	3,300.00	Square meters	65		281,632.00000	kWh	6,956.00000	Cubic Meter			
K9A 2N7	1,000.00	Square meters	168	2937.86000	1,787,739.00000	kWh	55,069.00000	Cubic Meter			
K9A 0G1	206.00	Square meters	25		5,059.00000	kWh	1,343.00000	Cubic Meter			
K9A 2M4	1,250.00	Square meters	168		362,499.00000	kWh	12,206.00000	Cubic Meter			
K9A 2N1	270.00	Square meters	40		22,854.00000	kWh	2,680.00000	Cubic Meter			
K9A 2M2	25.00	Square meters	168	175.56000	29,467.00000	kWh					
K9A 2M2	65.00	Square meters	168	294.60000	52,966.00000	kWh					
K9A 2M2	25.00	Square meters	168	20.81000	7,706.00000	kWh	69.00000	Cubic Meter			
K9A 2M2	115.00	Square meters	168	899.00000	123,597.00000	kWh					
K9A 2M2	30.00	Square meters	168	20.73000	9,521.00000	kWh					
K9A 2M2	45.00	Square meters	168	56.85000	14,566.00000	kWh					
K9A 2M2	25.00	Square meters	168	182.50000	26,489.00000	kWh					
K9A 0G1	920.00	Square meters	84		385,682.00000	kWh	7,172.00000	Cubic Meter			
K9A 0G1	1,565.00	Square meters	84		656,079.00000	kWh	12,201.00000	Cubic Meter			
K9A 0G1	100.00	Square meters	84		41,922.00000	kWh	780.00000	Cubic Meter			
K9A 0G1	2,185.00	Square meters	84		1,180,104.00000	kWh	21,945.00000	Cubic Meter			
K9A 0G1	4,566.00	Square meters	84		1,914,157.00000	kWh	35,596.00000	Cubic Meter			

Energy Type and Amount Purchased and Consumed in Natural Units

Energy Type and Amount Purchased and Consumed in Natural Units													
& 6	Propane		Coal		Wood		District Heating			District Cooling			
Unit	Quantity	Unit	Quantity	Unit	Quantity	Unit	Quantity	Unit	Renewable?	If Yes, enter Emission Factor	Quantity	Unit	Renewable?
<i>Litre</i>		<i>Litre</i>		<i>Metric Tonne</i>		<i>Metric Tonne</i>	<i>26.73000</i>	<i>Giga Joule</i>	<i>No</i>	<i>0.00000</i>	<i>20.50600</i>	<i>Giga Joule</i>	<i>No</i>

Total (calculated in webform)					
If Yes, enter Emission Factor	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)	Building / Operation Identifier	Comments
0.00000					max. 255 characters