

County Of Antigonish
Eco-Trust Opportunities
Listed By Opportunity Type And Pay-Back

Item	Opportunity Description	Report Section	Opp. Item	Category	Opp. Type	Estimated Project Cost	Annual Savings	Calculated Payback (Years)	Reduced kWh	Reduced Liters of Oil	Equivalent Annual Kgs of CO2 Saved	Comments	Priority
47	Disconnect the settling pond electrical service	4d	1	Building-Land Fill	House Keeping	\$50	\$200	0.3		0	0		H1
76	Replace belts on blower lower south river	7	1a	Water Works	House Keeping	\$20	\$72	0.3	720		626		H8
77	St Andrews blower replace belts with better efficiency	7	1b	Water Works	House Keeping	\$40	\$144	0.3	1,440		1,253		H9
40	Verify heating surfaces fire side in boiler and burner check.	4c	1	Building- Municipal	House Keeping	\$800	\$1,800	0.4		1,800	4,734		H4
2	Replace drive belts on motors driving belt driven equipment to notched v-belts	4a	2	Buildings -Arena	House Keeping	\$250	\$480	0.5	4,800		4,176		H5
78	Pomquet blower replace belts with more efficient ones	7	1c	Water Works	House Keeping	\$40	\$72	0.6	720		626		H10
61	Set up vehicle energy / fuel performance monitoring process.	5	2	Vehicles	House Keeping	\$10,000	\$8,000	1.3		8,000	21,040		H3
3	Replacement of Incandescent lamps per IB Story report item 8	4a	3	Buildings -Arena	House Keeping	\$950	\$730	1.3	7,300		6,351		H6
60	Vehicle routine maintenance	5	1	Vehicles	House Keeping	\$15,000	\$8,000	1.9		8,000	21,040		H2
24	Check boiler water steam side chemicals and treatment	4b	2	Building -Court House	House Keeping	\$1,000	\$500	2.0		500	1,315	Potential new detention center	
23	Replacement of Incandescent lamps with CF style	4b	1	Building -Court House	House Keeping	\$50	\$20	2.5	200		174	Potential new detention center	
1	Cleaning and re- lamping light fixtures	4a	1	Buildings -Arena	House Keeping	\$1,800	\$600	3.0	6,000		5,220		H7
72	Street light - current repairs	6	1	Street Lights	House Keeping			N/A					
73	Replace mercury vapour street lights installed by NSPI or utility	6	1	Street Lights	Minor Maintenance	\$100	\$972	0.1	1,000		870	Direct savings on rentals same consumption	M12
28	Summer shutdown switch for furnace or boiler	4b	4	Building -Court House	Minor Maintenance	\$300	\$600	0.5		600	1,578	Potential new detention center	
30	Check existing split air conditioners for conversion to heat pump capabilities	4b	6	Building -Court House	Minor Maintenance	\$2,000	\$4,000	0.5		4,000	10,520	Potential new detention center	
27	Install separate heating zone for judges chambers	4b	3	Building -Court House	Minor Maintenance	\$2,500	\$3,790	0.7		3,790	9,968	Potential new detention center	
6	Boiler burner maintenance	4a	3	Buildings -Arena	Minor Maintenance	\$1,000	\$1,200	0.8		2,400	6,312		M7
62	Vehicle -anti -idling program	5	1	Vehicles	Minor Maintenance	\$5,000	\$5,000	1.0		5,000	13,150		M1
41	Complete sealing and insulation as reported by air leakage test report.	4c	1	Building- Municipal	Minor Maintenance	\$2,000	\$1,800	1.1		1,800	4,734		M6
5	Boiler fire side maintenance and cleaning	4a	2	Buildings -Arena	Minor Maintenance	\$1,200	\$1,000	1.2		1,500	3,945		M9
48	Repair outdoor photo eye at recycle transfer building	4d	1	Building-Land Fill	Minor Maintenance	\$100	\$80	1.3	800		696		M10
64	Implement Fleet Smart program	5	3	Vehicles	Minor Maintenance	\$10,000	\$8,000	1.3		8,000	21,040		M2
29	Larger fresh air makeup for boiler room.	4b	5	Building -Court House	Minor Maintenance	\$1,500	\$800	1.9		800	2,104	Potential new detention center	
43	Consider lighting upgrade according to Conserve NS	4c	3	Building- Municipal	Minor Maintenance	\$500	\$250	2.0	2,500		2,175		M4
4	Insulate hot water supply and return lines	4a	1	Buildings -Arena	Minor Maintenance	\$2,500	\$1,200	2.1		1,200	3,156		M5
10	Replace exit lights with Led Style, conserve NS program.	4a	6	Building -Arena	Minor Maintenance	\$400	\$150	2.7	1,500		1,305		M8

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63	Modifications for heavy vehicles to reduce idling	5	2	Vehicles	Minor Maintenance	\$6,000	\$2,000	3.0		2,000	5,260		M11
49	Add natural lighting to recycling transfer building	4d	2	Building-Land Fill	Minor Maintenance	\$1,600	\$500	3.2	5,000		4,350		M3
25	Insulation on all steam lines	4b	1	Building -Court House	Minor Maintenance	\$3,000	\$800	3.8		800	2,104	Potential new detention center	
8	Replace locker room lighting controls	4a	5	Building -Arena	Minor Maintenance	\$600	\$150	4.0	1,500		1,305		
42	Consider window covering and orientation as per report	4c	2	Building- Municipal	Minor Maintenance	\$1,500	\$300	5.0		300	789		
79	Lighting upgrade with Conserve Nova Scotia	7	1	Water Works	Minor Maintenance	\$1,000	\$150	6.7	1,500		1,305		
26	Upgrade boiler lagging and insulation to reduce radiation losses	4b	2	Building -Court House	Minor Maintenance	\$3,000	\$400	7.5		400	1,052	Potential new detention center	
7	Relocate oil tank inside boiler room	4a	4	Building -Arena	Minor Maintenance	\$2,000	\$100	20.0		100	263		
65	Choose the right vehicle plan criteria	5	4	Vehicles	Minor Maintenance			N/A					
66	Verify the correct vehicle configuration	5	5	Vehicles	Minor Maintenance			N/A					
80	NSPI I&C program	7	2	Water Works	Minor Maintenance			N/A					
55	Maintenance Building furnace routine maintenance	4e	1	Building- Public Works	Retrofit	\$1,000	\$5,000	0.2		5,000	13,150	Moving from building	
87	Booster pump station VSD	7	5	Water Works	Retrofit	\$4,000	\$4,300	0.9	43,000		37,410		R1
81	RBC plant DO control Manual	7	1	Water Works	Retrofit	\$2,000	\$1,600	1.3	16,000		13,920		R2
74	Street light usage study	6	1	Street Lights	Retrofit	\$6,000	\$4,000	1.5	4,000		3,480		R3
88	Transformer loss reduction	7	6	Water Works	Retrofit	\$500	\$328	1.5	3,280		2,854		R14
93	Reduce heat loss in WTP lower south river	7	8	Water Works	Retrofit	\$4,000	\$2,500	1.6	25,000		21,750		R6
75	Reduce street lights costs by connecting to local service	6	2	Street Lights	Retrofit	\$400	\$240	1.7				Does not reduce GHG but rental costs	R15
14	Add variable speed drive to brine pump 30HP	4a	4a	Building -Arena	Retrofit	\$9,000	\$4,500	2.0	45,000		39,150		R5
20	Power factor correction capacitors	4a	8	Building -Arena	Retrofit	\$4,000	\$2,000	2.0	500		434		R17
21	Reclaim heat from transformer	4a	9	Building -Arena	Retrofit	\$1,000	\$500	2.0		500	1,315		R18
31	Install new energy management system	4b	1	Building -Court House	Retrofit	\$5,000	\$2,500	2.0		2,500	6,575	Potential new detention center	
52	Hot water tank replacement with direct on - demand heater.	4d	3	Building-Land Fill	Retrofit	\$600	\$264	2.3	2,640		2,297		R19
17	Improve efficiency of compressor motors	4a	5	Building -Arena	Retrofit	\$4,200	\$1,800	2.3	18,000		15,624		R7
34	Convert heating system to hot water distribution from steam in Court House	4b	4	Building -Court House	Retrofit	\$10,000	\$3,750	2.7		3,750	9,863	Potential new detention center	
39	Court House lighting improvement with conserve NS incentive plan.	4b	8a	Building -Court House	Retrofit	\$800	\$300	2.7	3,000		2,610	Potential new detention center	
13	Recover heat of compression with de-superheated for flood water as per Storey	4a	3	Building -Arena	Retrofit	\$25,000	\$9,200	2.7	9,200		8,004	See Story report	R4
57	De-stratification fans and air curtains doors for shop area	4e	2	Building- Public Works	Retrofit	\$15,000	\$5,000	3.0		5,000	13,150	Moving from building	
12	Add a free cooling system in winter as per Storey report item 2	4a	2	Building -Arena	Retrofit	\$2,100	\$650	3.2	6,500		5,655	See Story report	R10

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67	Vehicles -Add a compactor for recyclables to reduce volume shipping	5	1	Vehicles	Retrofit	\$22,000	\$6,500	3.4		5,000			R8
44	Consider an air source heat pump	4c	1	Building- Municipal	Retrofit	\$30,000	\$8,500	3.5		8,500	22,355	Added electrical load	R9
15	Add variable speed drive for evaporator condenser fan as per Storey report item5	4a	4b	Building -Arena	Retrofit	\$5,000	\$1,400	3.6	14,000		12,180	See Story report	R11
90	St Andrews STP blower power factor correction	7	7b	Water Works	Retrofit	\$700	\$195	3.6	200		174		R21
85	St Andrews blower power factor correction	7	4b	Water Works	Retrofit	\$1,000	\$262	3.8	2,620		2,279		R22
22	Reclaim heat in compressor room using HRV to corridor space	4a	10	Building -Arena	Retrofit	\$2,000	\$500	4.0		500	1,315		R13
83	St. Andrews DO control	7	3	Water Works	Retrofit	\$5,000	\$1,200	4.2	12,000		10,440		R12
32	Install HRV in boiler room	4b	2	Building -Court House	Retrofit	\$3,000	\$700	4.3		700	1,841	Potential New Detention center	
9	Energy management system as per Storey report item	4a	11	Building -Arena	Retrofit	\$9,000	\$2,050	4.4	12,638		10,995	See Story report	R20
16	Add a variable speed drive for evaporative water pump	4a	4c	Building -Arena	Retrofit	\$2,000	\$450	4.4	4,500		3,906		R16
51	Feed outdoor light from building power supply if close enough (typical).	4d	2	Building-Land Fill	Retrofit	\$800	\$180	4.4	1,800		1,566		R23
19	Review boiler sizing and consider multiple boilers for arena	4a	7	Building -Arena	Retrofit	\$30,000	\$6,000	5.0		6,000	15,780		E5
69	View remote area with internet cameras controlled from a local source	5	3	Vehicles	Retrofit	\$2,500	\$500	5.0		500		Typical of single site multiple sites available	E7
45	Consider a ground source heat pump - horizontal closed heat exchanger	4c	2	Building- Municipal	Retrofit	\$66,000	\$13,000	5.1		13,000	34,190		E3
53	Methane capture and gas turbine.	4d	4	Building-Land Fill	Retrofit	\$1,100,000	\$197,880	5.6	1,978,800		1,721,556	Review availability of fuel	
82	RBC plant DO automatic control system	7	2	Water Works	Retrofit	\$14,000	\$2,400	5.8	24,000		20,880		E4
50	Lighting modification for maintenance shed	4d	1	Building-Land Fill	Retrofit	\$3,000	\$500	6.0	5,000		4,350	Consider NSPI conserve NS plan	E8
70	Alternative fuel using electric for Arena ice resurfacers.	5	4a	Vehicles	Retrofit	\$30,000	\$5,000	6.0		5,000		Net difference for cost of ice resurfacers not replacement	
71	Methane or natural gas replacement for vehicles	5	4b	Vehicles	Retrofit	\$30,000	\$5,000	6.0				Availability of fuel	
36	Insulate the ceilings and walls of Court House	4b	6	Building -Court House	Retrofit	\$50,000	\$8,000	6.3		8,000	21,040	Potential New Detention center	E2
86	Pomquet SBR motor efficiency improvement.	7	4c	Water Works	Retrofit	\$1,000	\$160	6.3	1,600		1,392	Consider when replacing motors	E9
59	Radiant floor heating system	4e	4	Building- Public Works	Retrofit	\$20,000	\$3,000	6.7				Moving from building	
56	Add natural lighting for daylight enhancement	4e	1	Building- Public Works	Retrofit	\$6,000	\$800	7.5	8,000		6,960	Moving from building	
84	Improve plant motor efficiency Lower South River RBC	7	4a	Water Works	Retrofit	\$1,200	\$160	7.5	1,600		1,392	Consider when replacing motors	E10
54	Combustion of C&D waste for steam and power production.	4d	5	Building-Land Fill	Retrofit	\$3,000,000	\$360,000	8.3	3,600,000		3,132,000	Not enough fuel	
58	Heat pump replacement	4e	3	Building- Public Works	Retrofit	\$50,000	\$6,000	8.3				Moving from building	
37	Consider air source heat pump for partial heating demand.	4b	7	Building -Court House	Retrofit	\$27,000	\$3,000	9.0		3,000	7,890	Potential New Detention center	E6
11	Ice plant heat rejection and storage system as per Storey report	4a	1	Building -Arena	Retrofit	\$220,000	\$24,322	9.0	243,220		211,601	See Story report	E1
33	Consider single large boiler to two smaller boilers	4b	3	Building -Court House	Retrofit	\$30,000	\$3,000	10.0		3,000	7,890		

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68	Improve SCADA system to reduce travel to remote sites	5	2	Vehicles	Retrofit	\$10,000	\$1,000	10.0				
18	Adding insulation to roof of ice shed	4a	6	Building -Arena	Retrofit	\$55,000	\$4,800	11.5		4,800	12,624	
92	WTP at south river pumps power factor correction	7	7d	Water Works	Retrofit	\$4,000	\$324	12.3	350		305	
89	Power factor correction capacitors lower south river	7	7a	Water Works	Retrofit	\$5,000	\$400	12.5	400		348	
91	Pomquet STP blower motor power factor correction	7	7c	Water Works	Retrofit	\$5,000	\$400	12.5	400		348	
35	Heat loss reduction by replacing windows.	4b	5	Building -Court House	Retrofit	\$24,000	\$1,800	13.3		1,800	4,734	
38	Court house lighting and controls	4b	8	Building -Court House	Retrofit	\$4,000	\$300	13.3	3,000		2,610	
46	Verify if AHU can be converted to air source heat pumps	4c	3	Building- Municipal	Retrofit			N/A				
	Totals					\$5,040,600	\$771,975				5,636,718	

Priority Type Legend

Eco-Trust Implementation as: E1...E10
 House Keeping as: H1...H10
 Minor Maintenance as: M1...M12
 Retrofit as: R1...R23

Colour Legend

Item to be considered for Eco-trust program funding
 Item to be considered priority investment

Summary	
Total Capital Investment	\$5,040,600
Total Annual Energy Savings	\$771,975
Total CO2 Reduction	5,636,718 (Kgs)
Note that totals include alternatives that are mutually exclusive..	

Fuel Costs And Coefficients for CC			
	<u>Unit</u>	<u>Cost /Unit</u>	<u>CO2 Factor</u>
#2 Fuel Oil	Liters	\$1.00	2.68
Electrical Nova Scotia 2007	kWhr	\$0.10	0.87
Natural Gas	GJ	\$18.00	50.79