

Community Energy Association

Union of British Columbia Municipalities

2006 Energy Aware Award Application

submitted by:

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The City of Surrey

Executive Summary

Our submission focuses on the sustainable energy reduction that we have achieved through retrofitting existing facilities within the context of our City-wide Energy Management Program. We have hired a dedicated Sustainability Consultant, Anthony Jones & Associates Inc. and obtained support from BC Hydro and NRCan to assist in the funding and promotion of our retrofit activities which include extensive mechanical redesign and retrofit, operational enhancement and awareness training of City staff. LEED certified new construction projects are also featured as a testament to the City of Surrey's Energy Awareness including Canada's first LEED Library. We will also illustrate the sustainability and energy policies that are practiced by our Planning Group.

Challenge and Results

There is pressing competition for limited capital funding for existing building energy retrofit. Although funds are limited, we have already achieved repeatable annual GHG reductions of **838 Tons** and energy reductions of **3,085,352 kWh** (11,106 GJ) comprised of gas and electricity. Our ongoing program includes additional reductions of GHG and energy to bring the total reductions to **3,308 Tons** and **12,375,156 kWh** (44,457 GJ) in gas and electricity. Our simple payback is 5.2 years.

We achieved these results with limited funds using an innovative implementation model. We created a replicable program with a consultant-driven integrated design-build approach, resulting in a 35% reduction in capital cost which allowed us to expand the scope of our work and increase the speed with which it has progressed. In addition, we have worked with BC Hydro and NRCan to assist in funding our projects.

Endorsement, Adoption and Implementation

The energy management program was endorsed by City Council, adopted by management at the executive and operational levels, and is being implemented by the capital projects team. Results to date are shown in Table 1 on the following page. The spirit of sustainability and energy savings is also reflected in all new construction projects highlighted within this presentation.

Non Energy Benefits

Our community has benefited from the enhancements to the indoor environments in our recreational and administrative facilities. We now have improved central management and monitoring of our environmental, ice plant, aquatic and HVAC energy management systems. Maintenance costs have been reduced by central monitoring and control and longer life replacement equipment.

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Table 1 -Summary of Energy Management Program Results and Status

SubProject	Electric MWh Savings	Gas Savings GJ	Total Energy Savings (GJ)	CO2 Tons	Annual Electrical \$ Savings	Annual Gas \$ Savings	Annual Utility Cost Savings	Other Annual Cost Savings	Total Annual Cost Savings	Total Project Costs	City Cost	Potential BCH Incentive	Potential NRCan Incentive	Potential Incentive Total	SPB Years
RCMP HQ	532	158	2,072	200	17,666	1,356	19,022	10,231	29,253	176,968	92,800	68,625	15,544	84,169	3.2
Newton Arena	207	26	770	76	8,254	216	8,470	1,842	10,312	113,032	83,402	29,630	0	29,630	8.1
Cloverdale Arena	143	149	663	59	5,532	1,197	6,729	1,317	8,046	96,433	72,665	23,768	0	23,768	9.0
North Surrey Recreation Ctr BCH	319	577	1,724	145	11,585	5,827	17,412	1,579	18,991	159,978	102,869	44,177	12,931	57,108	5.4
City Hall Tower - base option	258	-186	743	83	15,046	0	15,046	6,081	21,127	188,513	146,013	42,500	0	42,500	6.9
North Surrey Recreation Ctr Dehum	-175	5,210	4,580	213	-8,414	57,310	48,896	0	48,896	203,023	168,670	0	34,353	34,353	3.4
City Hall New Wing (Civic Street)	192	-138	553	62	11,218	0	11,218	6,102	17,320	97,469	60,819	36,650	0	36,650	3.5
South Surrey Arena	256	0	922	92	14,080	0	14,080	5,000	19,080	60,000	39,000	21,000	0	21,000	2.0
Guildford Lib and Recreation Centre	99	-71	284	32	5,008	-673	4,335	2,469	6,804	54,192	40,399	13,792	0	13,792	5.9
Surrey Sports & Leisure Dehum	-555	16,203	14,206	659	-51,573	135,457	83,884	0	83,884	510,140	415,339	0	94,801	94,801	5.0
Surrey Sports & Leisure BCH	433	-178	1,379	146	18,043	-1,691	16,352	2,090	18,442	238,294	167,387	60,562	10,345	70,907	9.1
Newton Wave Pool BCH?		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Newton Wave Pool Dehum	-366	6,600	5,284	218	-16,454	62,700	46,246	0	46,246	431,460	391,832	0	39,628	39,628	8.5
South Surrey Indoor Pool BCH?		0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Surrey Indoor Pool Dehum	-111	3,800	3,402	162	-4,973	36,100	31,127	0	31,127	283,560	258,044	0	25,516	25,516	8.3
Fleetwood Community and Rec	101	235	599	49	4,553	2,233	6,786	2,284	9,070	91,571	77,405	14,166	0	14,166	8.5
South Surrey Arena	254	0	913	91	12,069	0	12,069	5,000	17,069	73,840	30,708	43,132	0	43,132	1.8
Cloverdale Curling Rink (tenant gas)	95	0	342	34	3,350	0	3,350	0	3,350	52,624	39,324	13,300	0	13,300	11.7
Fire Halls	172	611	1,231	94	7,755	5,805	13,560	1,000	14,560	134,424	129,424	5,000	0	5,000	8.9
Surrey Arts Centre	29	146	250	18	1,305	1,397	2,701	351	3,052	67,945	67,945	0	0	0	22.3
Multiple minor sites (TBD)	561	0	2,021	202	22,451	0	22,451	2,000	24,451	419,033	399,033	20,000	0	20,000	16.3
Projects Completed	1,458	724	5,973	563	58,083	8,596	66,679	21,050	87,729	734,923	497,748	208,700	28,475	237,175	5.7
Under Construction	273	5,072	6,055	367	16,884	57,310	74,194	11,102	85,296	360,492	268,489	57,650	34,353	92,003	3.1
Budget Candidates	-399	26,589	25,154	1,266	-45,396	234,125	188,729	6,843	195,572	1,609,217	1,350,407	88,520	170,290	258,810	6.9
Other (Maintenance)	1,111	757	4,758	440	46,930	7,201	54,131	8,351	62,482	747,866	666,434	81,432	0	81,432	10.7
Operational Programs	1,738	869	2,607	672	95,590	8,690	104,280	10,000	114,280	10,000	10,000	0	0	0	0
Total	4,182	34,011	44,547	3,308	172,091	315,922	488,013	47,346	535,358	3,462,498	2,793,079	436,302	233,118	669,420	5.2

Total Green House Gas Reduction of 3,308 Tons and Energy Reductions of 12,375,156 kWh (44,547 GJ) in gas and electricity.