

**Factor Four Energy Plan**

How to reduce energy throughput in buildings NE1 to NE8 by 75% (or 30,000 GJ/yr) by 2018

Updated by Alex Hebert on 2015-05-19

To learn more about a project, click on the hyperlinks located in the "Project Name" column.

CATEGORY	IMPACTED BUILDING(S)	PROJECT NAME	ANNUAL ESTIMATED SAVINGS			PROJECT FINANCIALS		
			Energy (Gje/yr)	GHG (TCO2e/yr)	Cost (\$/yr)	Gross Cost	Incremental Cost	
Reduce Energy Demand	NE2 - NE4	<a href="#">Dust Extraction System</a>	432	3.0	12,555	749,000	71,000	
	NE6	<a href="#">High Efficiency Boiler</a>	450	22.5	4,077	5,600	5,600	
	NE8	<a href="#">Welding Ventilation</a>	9,378	345.0	142,590	2,700,000	515,000	
	All bldgs - All parking - Smith St - Guichon Alley	<a href="#">LED Outdoor Lighting</a>	144	1.0	4,185	40,000	40,000	
	Capital Investment	NE2	<a href="#">Lighting Redesign</a>	86	0.6	2,503	53,822	53,822
		NE3	<a href="#">Lighting Redesign</a>	10	0.1	296	6,004	6,004
		N4	<a href="#">Lighting Redesign</a>	45	0.3	1,296	28,832	28,832
		N4 canopy	<a href="#">Lighting Redesign</a>	102	0.7	2,954	165,000	165,000
		NE6	<a href="#">Lighting Redesign</a>	51	0.4	1,493	4,502	4,502
		NE8	<a href="#">Lighting Redesign</a>	71	0.5	2,055	23,563	23,563
		NE2	<a href="#">Shop envelope (doors + leaks)</a>	110	5.5	997	223,000	223,000
		NE4	New filtration + Closing bay doors	387	22.8	1,886	34,140	34,140
		NE3	<a href="#">Passivhaus - Refurbishment</a>	272	12.4	3,049	n/a	n/a
		NE1	<a href="#">Passivhaus - new construction***</a>	13,031	447.7	212,913	n/a	n/a
	Operational Changes	NE4	<a href="#">Heat Doctors</a>	270	13.5	2,446	5,000	5,000
		NE2	<a href="#">Heat Doctors</a>	269	13.4	2,433	5,000	5,000
		NE6	<a href="#">Heat Doctors</a>	227	11.4	2,057	5,000	5,000
		NE8	<a href="#">Heat Doctors</a>	224	11.2	2,025	5,000	5,000
		NE3 - Home	<a href="#">Afresh Refresh</a>	18	0.1	523	10,000	10,000
	Behavioral Change	NE2-NE4	<a href="#">Light Savers Campaign Phase 1</a>	360	2.5	10,463	5,000	5,000
		All bldgs	<a href="#">Office Doctors</a>	32	0.2	942	2,000	2,000
	Business Practices Changes	N4 (phase 2) - NE6 - NE8	<a href="#">Light Savers Campaign Phase 2</a>	360	2.5	10,463	5,000	5,000
		NE8	<a href="#">Virtual Welding (without vent. savings)</a>	54	0.4	1,569	60,000	60,000
	Re-using Wasted Heat	NE6	<a href="#">Outdoor Welding</a>	-	0.0	-	n/a	165,000
		NE6	<a href="#">Heat Recovery</a>	164	8.2	1,490	n/a	20,000
		NE8	<a href="#">Heat Recovery</a>	441	22.3	3,867	82,000	82,000
	Renewable Heat	NE1	<a href="#">Wood waste to energy</a>	4,800	240.0	43,488	1,500,000	500,000
		NE2	<a href="#">Wood waste to energy</a>	-	0.0	-	n/a	n/a
NE3 - Center		<a href="#">Wood waste to energy - Connection via DE (natural gas boiler removal)</a>	20	1.0	181	n/a	n/a	
NE4		<a href="#">Wood waste to energy - Connection via DE</a>	-	0.0	-	n/a	n/a	
NE6		<a href="#">Wood waste to energy - Connection via DE</a>	-	0.0	-	n/a	n/a	
NE8		<a href="#">Wood waste to energy - Connection via DE</a>	-	0.0	-	n/a	n/a	
Renewable Electricity	NE3 - Home	<a href="#">Solar PVs</a>	11	0.1	314	n/a	n/a	
			<b>31,817</b>	<b>1,189</b>	<b>475,109</b>	<b>5,717,463</b>	<b>2,039,463</b>	
			<b>78.6%</b>	<b>89.5%</b>				

\* Refer to full version of plan for all assumptions and limitations.

of 2009 baseline