

Total Present Worth Profiles

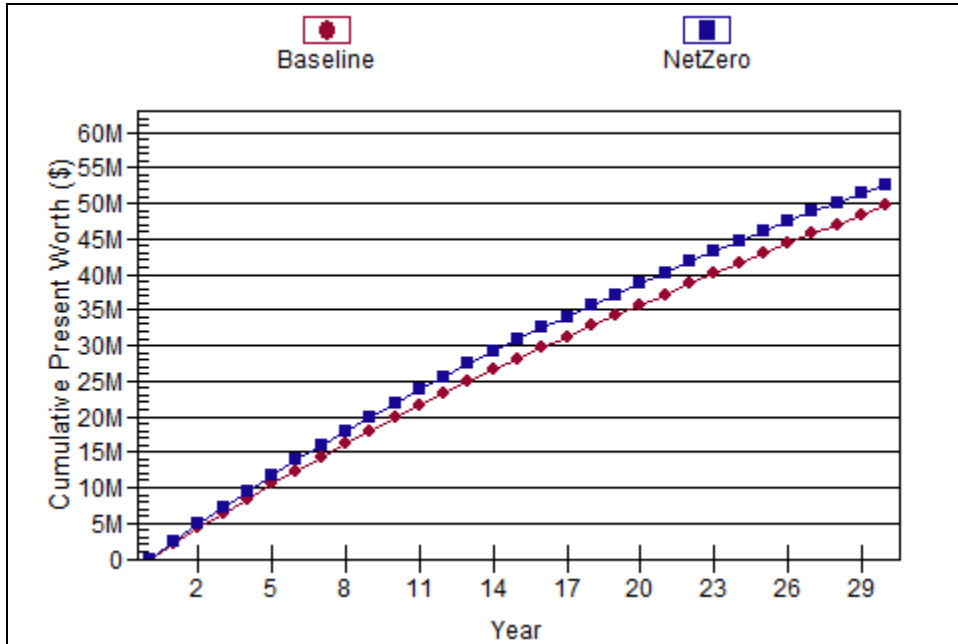
Project: 60-18-409 Wahconah Regional High School
 Prepared By: BALA

11/15/2018
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Building Life Cycle Cost Analysis w/PV

30 year life-cycle cost analysis for a Net Zero building compared to a Baseline building.

Type of Analysis Public Sector Lifecycle Analysis
 Type of Design Alternatives Independent
 Length of Analysis 30 yrs
 Discount Rate 2.75 %



Design Cases Ranked by Total Present Worth

Design Case Name	Design Case Short Name	Total Present Worth (\$)	Annual Operating Cost (\$/yr)	First Cost (\$)
Baseline Building	Baseline	\$49,607,218	\$181,250	\$35,600,000
Net Zero Building	NetZero	\$52,607,280	\$31,250	\$43,100,000

Cash Flow Details

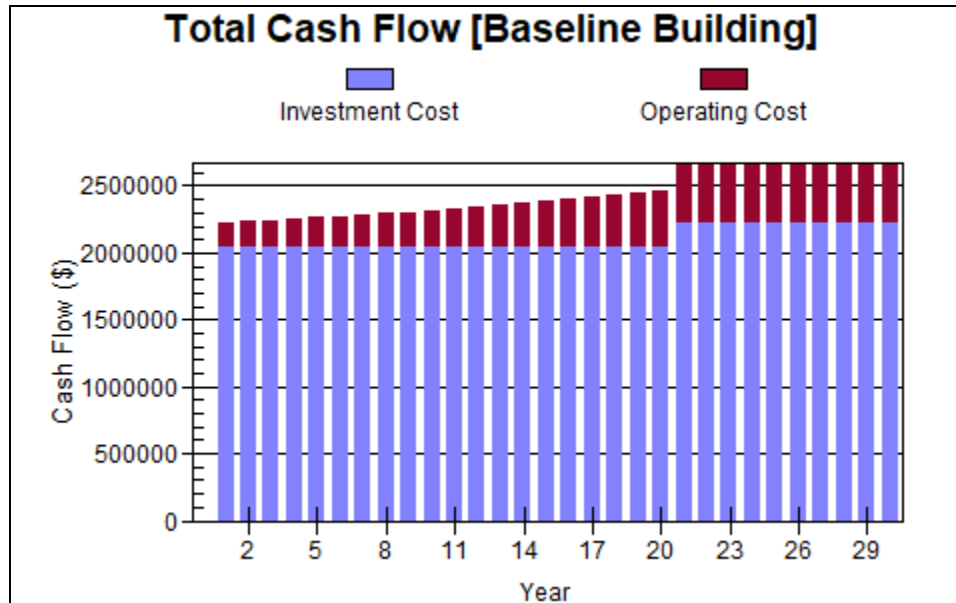
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Building Life Cycle Cost Analysis w/PV

30 year life-cycle cost analysis for a Net Zero building compared to a Baseline building.

Type of AnalysisPublic Sector Lifecycle Analysis
 Type of Design AlternativesIndependent
 Length of Analysis 30 yrs
 Discount Rate 2.75 %



1A. Component Cash Flows [Baseline Building], Actual Value

Year	Date	Cash Investment (\$)	Loan Principal (\$)	Loan Interest (\$)	Total Investment Cost (\$)	Annual Operating Cost (\$)	Non-Annual Operating Cost (\$)	Total Operating Cost (\$)	Total Cash Flow (\$)
0	Initial	0	0	0	0	0	0	0	0
1	1	0	634,752	1,424,000	2,058,752	189,250	0	189,250	2,248,002
2	2	0	660,142	1,398,610	2,058,752	197,604	0	197,604	2,256,355
3	3	0	686,547	1,372,204	2,058,752	206,327	0	206,327	2,265,078
4	4	0	714,009	1,344,742	2,058,752	215,436	0	215,436	2,274,187
5	5	0	742,570	1,316,182	2,058,752	224,948	0	224,948	2,283,699
6	6	0	772,272	1,286,479	2,058,752	234,880	0	234,880	2,293,632

Cash Flow Details

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Year	Date	Cash Investment (\$)	Loan Principal (\$)	Loan Interest (\$)	Total Investment Cost (\$)	Annual Operating Cost (\$)	Non-Annual Operating Cost (\$)	Total Operating Cost (\$)	Total Cash Flow (\$)
7	7	0	803,163	1,255,588	2,058,752	245,252	0	245,252	2,304,004
8	8	0	835,290	1,223,462	2,058,752	256,083	0	256,083	2,314,834
9	9	0	868,701	1,190,050	2,058,752	267,393	0	267,393	2,326,144
10	10	0	903,449	1,155,302	2,058,752	279,203	0	279,203	2,337,955
11	11	0	939,587	1,119,164	2,058,752	291,536	0	291,536	2,350,287
12	12	0	977,171	1,081,581	2,058,752	304,414	0	304,414	2,363,166
13	13	0	1,016,258	1,042,494	2,058,752	317,863	0	317,863	2,376,614
14	14	0	1,056,908	1,001,844	2,058,752	331,907	0	331,907	2,390,658
15	15	0	1,099,184	959,567	2,058,752	346,572	0	346,572	2,405,323
16	16	0	1,143,152	915,600	2,058,752	361,886	0	361,886	2,420,638
17	17	0	1,188,878	869,874	2,058,752	377,878	0	377,878	2,436,630
18	18	0	1,236,433	822,319	2,058,752	394,579	0	394,579	2,453,330
19	19	0	1,285,890	772,861	2,058,752	412,018	0	412,018	2,470,770
20	20	0	1,337,326	721,426	2,058,752	430,230	0	430,230	2,488,981
21	21	0	1,492,564	739,983	2,232,546	449,248	0	449,248	2,681,794
22	22	0	1,553,792	678,754	2,232,546	469,108	0	469,108	2,701,654
23	23	0	1,617,554	614,992	2,232,546	489,847	0	489,847	2,722,394
24	24	0	1,683,955	548,591	2,232,546	511,505	0	511,505	2,744,052
25	25	0	1,753,105	479,441	2,232,546	534,123	0	534,123	2,766,669
26	26	0	1,825,120	407,426	2,232,546	557,742	0	557,742	2,790,288
27	27	0	1,900,119	332,427	2,232,546	582,407	0	582,407	2,814,953
28	28	0	1,978,229	254,318	2,232,546	608,165	0	608,165	2,840,711
29	29	0	2,059,578	172,968	2,232,546	635,063	0	635,063	2,867,610
30	30	0	2,144,303	88,243	2,232,546	663,154	0	663,154	2,895,700
Totals		0	36,910,001	26,590,492	63,500,500	11,385,621	0	11,385,621	74,886,112

1B. Present Worth Cash Flows [Baseline Building]

Year	Date	Total Investment Cost (\$)	Total Operating Cost (\$)	Total Present Worth (\$)
0	Initial	0	0	0
1	1	2,003,651	184,185	2,187,836
2	2	1,950,025	187,168	2,137,193
3	3	1,897,835	190,200	2,088,035
4	4	1,847,041	193,282	2,040,323
5	5	1,797,607	196,414	1,994,021
6	6	1,749,496	199,598	1,949,094
7	7	1,702,672	202,834	1,905,506

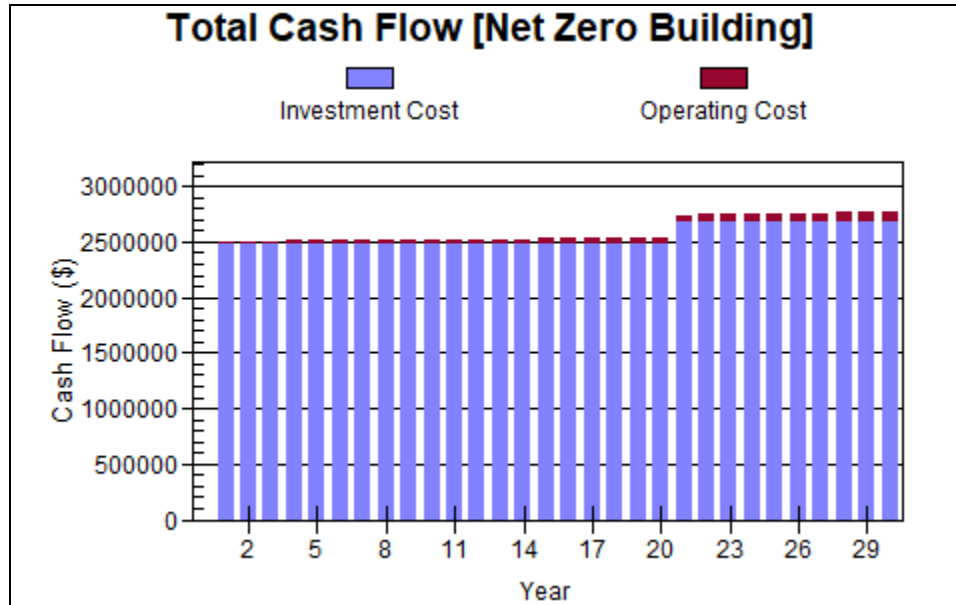
Cash Flow Details

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Year	Date	Total Investment Cost (\$)	Total Operating Cost (\$)	Total Present Worth (\$)
8	8	1,657,102	206,123	1,863,225
9	9	1,612,752	209,466	1,822,217
10	10	1,569,588	212,864	1,782,452
11	11	1,527,579	216,318	1,743,897
12	12	1,486,695	219,828	1,706,523
13	13	1,446,905	223,396	1,670,302
14	14	1,408,180	227,023	1,635,204
15	15	1,370,492	230,710	1,601,202
16	16	1,333,812	234,457	1,568,269
17	17	1,298,114	238,265	1,536,379
18	18	1,263,371	242,137	1,505,508
19	19	1,229,558	246,072	1,475,630
20	20	1,196,650	250,071	1,446,722
21	21	1,262,938	254,137	1,517,075
22	22	1,229,137	258,269	1,487,406
23	23	1,196,240	262,469	1,458,710
24	24	1,164,224	266,739	1,430,963
25	25	1,133,065	271,079	1,404,143
26	26	1,102,739	275,490	1,378,229
27	27	1,073,226	279,974	1,353,199
28	28	1,044,502	284,531	1,329,033
29	29	1,016,547	289,164	1,305,711
30	30	989,340	293,873	1,283,213
Totals		42,561,083	7,046,136	49,607,220

Cash Flow Details



2A. Component Cash Flows [Net Zero Building], Actual Value

Year	Date	Cash Investment (\$)	Loan Principal (\$)	Loan Interest (\$)	Total Investment Cost (\$)	Annual Operating Cost (\$)	Non-Annual Operating Cost (\$)	Total Operating Cost (\$)	Total Cash Flow (\$)
0	Initial	0	0	0	0	0	0	0	0
1	1	0	768,477	1,724,000	2,492,477	32,500	0	32,500	2,524,977
2	2	0	799,216	1,693,261	2,492,477	33,800	0	33,800	2,526,277
3	3	0	831,185	1,661,292	2,492,477	35,152	0	35,152	2,527,629
4	4	0	864,432	1,628,045	2,492,477	36,558	0	36,558	2,529,035
5	5	0	899,010	1,593,468	2,492,477	38,020	0	38,020	2,530,498
6	6	0	934,970	1,557,507	2,492,477	39,541	0	39,541	2,532,018
7	7	0	972,369	1,520,108	2,492,477	41,123	0	41,123	2,533,600
8	8	0	1,011,264	1,481,214	2,492,477	42,768	0	42,768	2,535,245
9	9	0	1,051,714	1,440,763	2,492,477	44,478	0	44,478	2,536,956
10	10	0	1,093,783	1,398,694	2,492,477	46,258	0	46,258	2,538,735
11	11	0	1,137,534	1,354,943	2,492,477	48,108	0	48,108	2,540,585
12	12	0	1,183,035	1,309,442	2,492,477	50,032	0	50,032	2,542,510
13	13	0	1,230,357	1,262,120	2,492,477	52,034	0	52,034	2,544,511
14	14	0	1,279,571	1,212,906	2,492,477	54,115	0	54,115	2,546,592

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Year	Date	Cash Investment (\$)	Loan Principal (\$)	Loan Interest (\$)	Total Investment Cost (\$)	Annual Operating Cost (\$)	Non-Annual Operating Cost (\$)	Total Operating Cost (\$)	Total Cash Flow (\$)
15	15	0	1,330,754	1,161,723	2,492,477	56,279	0	56,279	2,548,757
16	16	0	1,383,984	1,108,493	2,492,477	58,531	0	58,531	2,551,008
17	17	0	1,439,344	1,053,134	2,492,477	60,872	0	60,872	2,553,349
18	18	0	1,496,917	995,560	2,492,477	63,307	0	63,307	2,555,784
19	19	0	1,556,794	935,683	2,492,477	65,839	0	65,839	2,558,316
20	20	0	1,619,066	873,412	2,492,477	68,473	0	68,473	2,560,950
21	21	0	1,800,330	891,149	2,691,479	71,212	0	71,212	2,762,690
22	22	0	1,874,091	817,388	2,691,479	74,060	0	74,060	2,765,539
23	23	0	1,950,898	740,581	2,691,479	77,022	0	77,022	2,768,501
24	24	0	2,030,879	660,600	2,691,479	80,103	0	80,103	2,771,582
25	25	0	2,114,166	577,313	2,691,479	83,307	0	83,307	2,774,786
26	26	0	2,200,898	490,581	2,691,479	86,640	0	86,640	2,778,119
27	27	0	2,291,217	400,261	2,691,479	90,105	0	90,105	2,781,584
28	28	0	2,385,276	306,203	2,691,479	93,709	0	93,709	2,785,188
29	29	0	2,483,229	208,250	2,691,479	97,458	0	97,458	2,788,937
30	30	0	2,585,240	106,239	2,691,479	101,356	0	101,356	2,792,835
Totals		0	44,600,000	32,164,333	76,764,330	1,822,760	0	1,822,760	78,587,093

2B. Present Worth Cash Flows [Net Zero Building]

Year	Date	Total Investment Cost (\$)	Total Operating Cost (\$)	Total Present Worth (\$)
0	Initial	0	0	0
1	1	2,425,769	31,630	2,457,399
2	2	2,360,845	32,015	2,392,860
3	3	2,297,660	32,404	2,330,064
4	4	2,236,165	32,799	2,268,964
5	5	2,176,316	33,198	2,209,514
6	6	2,118,070	33,602	2,151,671
7	7	2,061,382	34,010	2,095,392
8	8	2,006,211	34,424	2,040,635
9	9	1,952,517	34,843	1,987,359
10	10	1,900,259	35,267	1,935,526
11	11	1,849,401	35,696	1,885,097
12	12	1,799,904	36,130	1,836,034
13	13	1,751,731	36,570	1,788,301
14	14	1,704,848	37,014	1,741,862
15	15	1,659,219	37,465	1,696,684

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Year	Date	Total Investment Cost (\$)	Total Operating Cost (\$)	Total Present Worth (\$)
16	16	1,614,812	37,921	1,652,732
17	17	1,571,593	38,382	1,609,975
18	18	1,529,531	38,849	1,568,380
19	19	1,488,595	39,321	1,527,916
20	20	1,448,754	39,800	1,488,554
21	21	1,522,553	40,284	1,562,837
22	22	1,481,804	40,774	1,522,578
23	23	1,442,145	41,270	1,483,415
24	24	1,403,547	41,772	1,445,319
25	25	1,365,983	42,280	1,408,263
26	26	1,329,424	42,795	1,372,218
27	27	1,293,843	43,315	1,337,158
28	28	1,259,215	43,842	1,303,057
29	29	1,225,513	44,376	1,269,888
30	30	1,192,713	44,915	1,237,629
Totals		51,470,322	1,136,963	52,607,281