

Beverly Barker

From: Gale, Ric [RGale@idahopower.com]
Sent: Monday, November 24, 2008 4:35 PM
To: Beverly Barker
Subject: Affordability Workshops
Attachments: WAQC vs Bill Reduction.xls

ENR-U-08-01

Beverly,

During the affordability workshops I made a comment regarding the larger economic benefit of spending dollars on low income weatherization and other energy efficiency measures over direct energy assistance payments. Our calculations indicate that a \$100 investment in a weatherization project with a 25 year life would result in a present value bill reduction of \$230 and a present value system benefit (avoided cost) of \$320.

The above comparison is drawn for an analysis that we asked Pete Pengilly from our Energy Efficiency Research and Analysis group to perform. His analysis is attached. The analysis shows that a \$200 annual bill credit (escalated) over 25 years has a present value of \$3,216 in bill reduction benefits to the customer (Direct Bill Reduction tab). In comparison, if the Company spends a present value amount of \$2,949 to weatherize a home, the present value bill reduction benefit to the customer is \$7,021 and the Idaho Power system benefit is \$9,733. (WAQC Investment tab). The inputs for the weatherization analysis are from the 2008 WAQC annual report.

Although it gets to be a lot of numbers, the bottom line is efficiency is the best bang for the dollar.

Regards,

Ric

This transmission may contain information that is privileged, confidential and/or exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or use of the information contained herein (including any reliance thereon) is STRICTLY PROHIBITED. If you received this transmission in error, please immediately contact the sender and destroy the material in its entirety, whether in electronic or hard copy format. Thank you.

=====
"EMF <idahopower.com>" made the previous annotations.

RECEIVED
2008 DEC 29 PM 2:12
IDAHO PUBLIC
UTILITIES COMMISSION

Average Annual kWh Savings 7,666
 Average Annual Bill Reduction \$437

7,666
 \$437

WAQC Measure Life (years) 25

Total NPV
 \$10,924 \$7,021

Lifetime Bill Savings

Cost to Utility \$2,615 \$2,949
 Benefit to Utility \$20,882 \$9,733

2007 WAQC Report

2,997,399 kWh
 391 houses
 7,666 average

Yr#	Year	1 Year		Cumulative		Customer Bill Savings	Admin Costs	Incentives	Participant		PV Avoided	
		Energy Savings	Savings	Energy Savings	Savings				Costs	Costs	Costs	Costs
1	2008	7,666	\$437	7,666	\$3,049	\$437	\$0	\$0	\$0	\$645	\$645	\$645
2	2009	0	\$450	7,666	\$0	\$450	\$0	\$0	\$0	\$643	\$622	\$622
3	2010	0	\$464	7,666	\$0	\$464	\$0	\$0	\$0	\$525	\$475	\$475
4	2011	0	\$477	7,666	\$0	\$477	\$0	\$0	\$0	\$544	\$460	\$460
5	2012	0	\$492	7,666	\$0	\$492	\$0	\$0	\$0	\$613	\$485	\$485
6	2013	0	\$507	7,666	\$0	\$507	\$0	\$0	\$0	\$638	\$472	\$472
7	2014	0	\$522	7,666	\$0	\$522	\$0	\$0	\$0	\$653	\$452	\$452
8	2015	0	\$537	7,666	\$0	\$537	\$0	\$0	\$0	\$682	\$441	\$441
9	2016	0	\$554	7,666	\$0	\$554	\$0	\$0	\$0	\$713	\$431	\$431
10	2017	0	\$570	7,666	\$0	\$570	\$0	\$0	\$0	\$762	\$431	\$431
11	2018	0	\$587	7,666	\$0	\$587	\$0	\$0	\$0	\$786	\$416	\$416
12	2019	0	\$605	7,666	\$0	\$605	\$0	\$0	\$0	\$823	\$407	\$407
13	2020	0	\$623	7,666	\$0	\$623	\$0	\$0	\$0	\$856	\$396	\$396
14	2021	0	\$642	7,666	\$0	\$642	\$0	\$0	\$0	\$816	\$353	\$353
15	2022	0	\$661	7,666	\$0	\$661	\$0	\$0	\$0	\$859	\$348	\$348
16	2023	0	\$681	7,666	\$0	\$681	\$0	\$0	\$0	\$894	\$338	\$338
17	2024	0	\$701	7,666	\$0	\$701	\$0	\$0	\$0	\$931	\$330	\$330
18	2025	0	\$722	7,666	\$0	\$722	\$0	\$0	\$0	\$976	\$323	\$323
19	2026	0	\$744	7,666	\$0	\$744	\$0	\$0	\$0	\$991	\$307	\$307
20	2027	0	\$766	7,666	\$0	\$766	\$0	\$0	\$0	\$1,018	\$295	\$295
21	2028	0	\$789	7,666	\$0	\$789	\$0	\$0	\$0	\$1,045	\$283	\$283
22	2029	0	\$813	7,666	\$0	\$813	\$0	\$0	\$0	\$1,073	\$272	\$272
23	2030	0	\$837	7,666	\$0	\$837	\$0	\$0	\$0	\$1,103	\$261	\$261

24	2031	0	7,666	\$862	\$0	\$0	\$0	\$1,132	\$251
25	2032	0	7,666	\$888	\$0	\$0	\$0	\$1,161	\$241
Total		7,666	191,650	\$15,931	3,049	-	-	\$20,882	\$ 9,733
Discounted Total									
				\$7,021	\$	2,949	\$	-	\$

Model Assumptions	
Discount Rate	6.93%
Line Loss	10.90%
Benefit/Cost Ratios	
Utility Cost	3.19
Total Resource Cost	3.19
Total Costs	

Average Annual kWh Savings 0
 Average Annual Bill Reduction \$200

WAQC Measure Life (years) 25
 Lifetime Bill Savings Total \$5,000 NPV \$3,216

Yr#	Year	Cumulative							Participant Costs	Avoided Costs	PV Avoided Costs
		1 Year Energy Savings	Energy Savings	Admin Costs	Incentives	Participant Costs	Avoided Costs	PV Avoided Costs			
1	2008	0	0	\$0	\$200	\$0	\$0	\$0	\$0	\$0	
2	2009	0	0	\$0	\$206	\$0	\$0	\$0	\$0	\$0	
3	2010	0	0	\$0	\$212	\$0	\$0	\$0	\$0	\$0	
4	2011	0	0	\$0	\$219	\$0	\$0	\$0	\$0	\$0	
5	2012	0	0	\$0	\$225	\$0	\$0	\$0	\$0	\$0	
6	2013	0	0	\$0	\$232	\$0	\$0	\$0	\$0	\$0	
7	2014	0	0	\$0	\$239	\$0	\$0	\$0	\$0	\$0	
8	2015	0	0	\$0	\$246	\$0	\$0	\$0	\$0	\$0	
9	2016	0	0	\$0	\$253	\$0	\$0	\$0	\$0	\$0	
10	2017	0	0	\$0	\$261	\$0	\$0	\$0	\$0	\$0	
11	2018	0	0	\$0	\$269	\$0	\$0	\$0	\$0	\$0	
12	2019	0	0	\$0	\$277	\$0	\$0	\$0	\$0	\$0	
13	2020	0	0	\$0	\$285	\$0	\$0	\$0	\$0	\$0	
14	2021	0	0	\$0	\$294	\$0	\$0	\$0	\$0	\$0	
15	2022	0	0	\$0	\$303	\$0	\$0	\$0	\$0	\$0	
16	2023	0	0	\$0	\$312	\$0	\$0	\$0	\$0	\$0	
17	2024	0	0	\$0	\$321	\$0	\$0	\$0	\$0	\$0	
18	2025	0	0	\$0	\$331	\$0	\$0	\$0	\$0	\$0	
19	2026	0	0	\$0	\$340	\$0	\$0	\$0	\$0	\$0	
20	2027	0	0	\$0	\$351	\$0	\$0	\$0	\$0	\$0	
21	2028	0	0	\$0	\$361	\$0	\$0	\$0	\$0	\$0	
22	2029	0	0	\$0	\$372	\$0	\$0	\$0	\$0	\$0	
23	2030	0	0	\$0	\$383	\$0	\$0	\$0	\$0	\$0	
24	2031	0	0	\$0	\$395	\$0	\$0	\$0	\$0	\$0	
25	2032	0	0	\$0	\$407	\$0	\$0	\$0	\$0	\$0	
Total				\$	\$ 7,292	\$	\$	\$	\$	\$	

Discounted Total \$ 3,216

Model Assumptions	
Discount Rate	6.93%
Line Loss	10.90%
Benefit/Cost Ratios	
Utility Cost	0.00
Total Resource Cost	n/a

Discount Rate 0.0693

YR	Electricity \$/kWh						Electricity \$/kWh	
	SONP	SMP	SOPF	NSMP	NSOFP	SONP	NSOFP	
2008	\$ 0.089	\$ 0.066	\$ 0.048	\$ 0.069	\$ 0.056	\$ 64.92	\$	
2009	\$ 0.088	\$ 0.066	\$ 0.049	\$ 0.068	\$ 0.055	\$ 64.92	\$	
2010	\$ 0.067	\$ 0.050	\$ 0.037	\$ 0.053	\$ 0.042	\$ 64.92	\$	
2011	\$ 0.068	\$ 0.056	\$ 0.041	\$ 0.054	\$ 0.043	\$ 64.92	\$	
2012	\$ 0.069	\$ 0.068	\$ 0.051	\$ 0.065	\$ 0.052	\$ 64.92	\$	
2013	\$ 0.071	\$ 0.072	\$ 0.054	\$ 0.068	\$ 0.054	\$ 64.92	\$	
2014	\$ 0.073	\$ 0.074	\$ 0.056	\$ 0.070	\$ 0.056	\$ 64.92	\$	
2015	\$ 0.076	\$ 0.078	\$ 0.059	\$ 0.074	\$ 0.060	\$ 64.92	\$	
2016	\$ 0.079	\$ 0.082	\$ 0.062	\$ 0.079	\$ 0.064	\$ 64.92	\$	
2017	\$ 0.082	\$ 0.090	\$ 0.067	\$ 0.086	\$ 0.070	\$ 64.92	\$	
2018	\$ 0.085	\$ 0.092	\$ 0.071	\$ 0.090	\$ 0.073	\$ 64.92	\$	
2019	\$ 0.089	\$ 0.098	\$ 0.075	\$ 0.095	\$ 0.077	\$ 64.92	\$	
2020	\$ 0.093	\$ 0.103	\$ 0.079	\$ 0.100	\$ 0.080	\$ 64.92	\$	
2021	\$ 0.086	\$ 0.097	\$ 0.076	\$ 0.094	\$ 0.077	\$ 64.92	\$	
2022	\$ 0.089	\$ 0.104	\$ 0.081	\$ 0.101	\$ 0.081	\$ 64.92	\$	
2023	\$ 0.093	\$ 0.109	\$ 0.085	\$ 0.106	\$ 0.086	\$ 64.92	\$	
2024	\$ 0.096	\$ 0.114	\$ 0.090	\$ 0.111	\$ 0.090	\$ 64.92	\$	
2025	\$ 0.099	\$ 0.120	\$ 0.096	\$ 0.118	\$ 0.096	\$ 64.92	\$	
2026	\$ 0.093	\$ 0.124	\$ 0.099	\$ 0.122	\$ 0.098	\$ 64.92	\$	
2027	\$ 0.097	\$ 0.128	\$ 0.102	\$ 0.125	\$ 0.101	\$ 64.92	\$	
2028	\$ 0.101	\$ 0.132	\$ 0.105	\$ 0.129	\$ 0.104	\$ 64.92	\$	
2029	\$ 0.104	\$ 0.135	\$ 0.108	\$ 0.133	\$ 0.108	\$ 64.92	\$	
2030	\$ 0.109	\$ 0.140	\$ 0.111	\$ 0.137	\$ 0.111	\$ 64.92	\$	
2031	\$ 0.112	\$ 0.144	\$ 0.115	\$ 0.141	\$ 0.114	\$ 64.92	\$	
2032	\$ 0.116	\$ 0.148	\$ 0.118	\$ 0.145	\$ 0.118	\$ 64.92	\$	
2033	\$ 0.119	\$ 0.152	\$ 0.122	\$ 0.150	\$ 0.121	\$ 64.92	\$	
2034	\$ 0.123	\$ 0.157	\$ 0.125	\$ 0.154	\$ 0.125	\$ 64.92	\$	
2035	\$ 0.126	\$ 0.162	\$ 0.129	\$ 0.159	\$ 0.128	\$ 64.92	\$	
2036	\$ 0.130	\$ 0.167	\$ 0.133	\$ 0.164	\$ 0.132	\$ 64.92	\$	
2037	\$ 0.134	\$ 0.172	\$ 0.137	\$ 0.169	\$ 0.136	\$ 64.92	\$	
2038	\$ 0.138	\$ 0.177	\$ 0.141	\$ 0.174	\$ 0.140	\$ 64.92	\$	
2039	\$ 0.142	\$ 0.182	\$ 0.145	\$ 0.179	\$ 0.145	\$ 64.92	\$	
2040	\$ 0.146	\$ 0.188	\$ 0.150	\$ 0.184	\$ 0.149	\$ 64.92	\$	
2041	\$ 0.151	\$ 0.193	\$ 0.154	\$ 0.190	\$ 0.153	\$ 64.92	\$	
2042	\$ 0.155	\$ 0.199	\$ 0.159	\$ 0.195	\$ 0.158	\$ 64.92	\$	

64.92
64.92
64.92
64.92
64.92
64.92
64.92
64.92
64.92
64.92
64.92
64.92
64.92

\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$

2043 \$ 0.160 \$ 0.205 \$ 0.164 \$ 0.201 \$ 0.163
2044 \$ 0.165 \$ 0.211 \$ 0.168 \$ 0.207 \$ 0.168
2045 \$ 0.170 \$ 0.217 \$ 0.173 \$ 0.213 \$ 0.173
2046 \$ 0.175 \$ 0.224 \$ 0.179 \$ 0.220 \$ 0.178
2047 \$ 0.180 \$ 0.231 \$ 0.184 \$ 0.226 \$ 0.183
2048 \$ 0.186 \$ 0.238 \$ 0.190 \$ 0.233 \$ 0.189
2049 \$ 0.191 \$ 0.245 \$ 0.195 \$ 0.240 \$ 0.194
2050 \$ 0.197 \$ 0.252 \$ 0.201 \$ 0.247 \$ 0.200
2051 \$ 0.203 \$ 0.260 \$ 0.207 \$ 0.255 \$ 0.206
2052 \$ 0.209 \$ 0.267 \$ 0.213 \$ 0.263 \$ 0.212
2053 \$ 0.215 \$ 0.275 \$ 0.220 \$ 0.270 \$ 0.219
2054 \$ 0.222 \$ 0.284 \$ 0.226 \$ 0.279 \$ 0.225

Energy Efficiency Load Shape (Residential)					
SONP	SMP	SOPF	NSMP	NSOFP	
512	960	736	3616	2936	
14.13%	23.38%	11.47%	32.82%	18.19%	

0.13
0.109
0.0693

Total 8760
100%

Hours
Percent

Year Annual Energy Savings per Pricing Period (including line loss)
2008 1,083 1,793 879 2,516 1,395

Total 7,666

Year	Cumulative Energy Savings (kWh)				
2008	1,083	1,793	879	2,516	1,395
2009	1,083	1,793	879	2,516	1,395
2010	1,083	1,793	879	2,516	1,395
2011	1,083	1,793	879	2,516	1,395
2012	1,083	1,793	879	2,516	1,395
2013	1,083	1,793	879	2,516	1,395
2014	1,083	1,793	879	2,516	1,395
2015	1,083	1,793	879	2,516	1,395
2016	1,083	1,793	879	2,516	1,395
2017	1,083	1,793	879	2,516	1,395
2018	1,083	1,793	879	2,516	1,395
2019	1,083	1,793	879	2,516	1,395
2020	1,083	1,793	879	2,516	1,395
2021	1,083	1,793	879	2,516	1,395
2022	1,083	1,793	879	2,516	1,395
2023	1,083	1,793	879	2,516	1,395
2024	1,083	1,793	879	2,516	1,395
2025	1,083	1,793	879	2,516	1,395
2026	1,083	1,793	879	2,516	1,395
2027	1,083	1,793	879	2,516	1,395
2028	1,083	1,793	879	2,516	1,395
2029	1,083	1,793	879	2,516	1,395
2030	1,083	1,793	879	2,516	1,395
2031	1,083	1,793	879	2,516	1,395
2032	1,083	1,793	879	2,516	1,395
	Energy Savings (PV)				
					191,650

Total 7,666

Year Avoided Cost per Pricing Period

Total

2008	234	118	42	174	78	\$	645
2009	233	119	43	171	77	\$	643
2010	210	90	33	133	59	\$	525
2011	211	100	36	137	60	\$	544
2012	212	122	45	163	72	\$	613
2013	215	129	48	172	76	\$	638
2014	217	133	49	176	78	\$	653
2015	219	141	52	186	83	\$	682
2016	223	148	55	199	89	\$	713
2017	227	162	59	217	97	\$	762
2018	230	166	62	227	101	\$	786
2019	234	176	66	240	107	\$	823
2020	238	184	70	252	112	\$	856
2021	231	174	66	238	107	\$	816
2022	234	187	71	255	113	\$	859
2023	238	195	75	266	119	\$	894
2024	241	205	79	280	126	\$	931
2025	245	216	84	297	133	\$	976
2026	239	222	87	306	137	\$	991
2027	243	229	90	316	141	\$	1,018
2028	247	236	92	325	146	\$	1,045
2029	251	243	95	335	150	\$	1,073
2030	255	250	98	345	154	\$	1,103
2031	259	258	101	355	159	\$	1,132
2032	263	265	104	366	164	\$	1,161
						\$	20,882