

#### **4.11 Locally not Cost Effective Water Conservation Programs and Measures**

*For the purposes of the 2014 IRWM Drought solicitation, “not locally cost-effective” means that the present value of the local benefits of implementing a water conservation program or measure is less than the present value of the local costs of implementing the program or measure (CWC Section 10631.5 (a)(4)(B)).*

*Applicants must include documentation that confirms the proposed water conservation program or measure’s total annualized cost (annualized costs plus annual operation and maintenance cost) exceeds its annualized local monetary benefits over the life of the project. Applicants may use economic analysis support tables found at the following link: <http://www.water.ca.gov/irwm/grants/resourceslinks.cfm>.*

One project associated with this Proposal is seen as “not locally cost-effective.” The Visalia Water Conservation Program Project being implemented by Cal Water (sponsored by the City of Visalia) is not locally cost-effective. The proposed conservation programs comprising the project were developed by Cal Water to comply with the State’s 20x2020 requirements at least possible cost. As part of the 20x2020 analysis, a broader suite of programs were evaluated and programs were selected for implementation on the basis of savings potential, technical and administrative feasibility, and cost effectiveness. Programs for which grant funding is being requested are from the subset of programs included in the least-cost set of conservation measures that are not locally cost-effective to implement, but are nonetheless needed to meet the 2020 gallon per capita per day (gpcd) reduction target. Funding will assist Cal Water and the Region implement conservation programs and measures that are not locally cost-effective but needed for drought relief and long-term compliance with the State’s 2009 conservation law.

The following discussion uses the ES Tables of the PSP to demonstrate that the present value of the annualized capital plus annual operation and maintenance costs for the conservation program exceeds the present value of the project’s benefits. The PSP specified discount factors and inflation update factors in Tables ES-1 and ES-2 were used in the analysis.

##### **Program Benefits**

The annual program benefits are based on unit avoided costs that are calculated using the Avoided Cost model put together by the California Urban Water Conservation Council and Water Research Foundation in 2006. The avoided unit capital costs (the “long-run avoided cost”) are the annualized per-acre-foot value of deferring planned future capital investments in additional well capacity. The avoided unit operations and maintenance cost (the “short-run avoided cost”) is the cost to produce an acre-foot of supply from the groundwater basin estimated at approximately \$76 per acre-foot.

It is assumed that only peak-season (May through September) water savings contribute to capital investment deferral. The proportion of project water savings in the peak period starts out at about 70% and then steadily decreases until they are about 40% of total savings at the end of the planning period, which is due to the program being front-weighted with landscape conservation programs. These programs have shorter savings life than the plumbing fixture rebate programs, which come to dominate the water savings in the later years of the planning period. The avoided capital cost per AF of savings also varies over time due to the schedule of planned additions (new well capacity and a pipeline in 2017). These planned additions occur mostly in the middle of the planning period, so the avoided costs initially rise and then they begin to fall. Included in **Attachment 1 – Appendix K** is a table showing the calculation of the long-run avoided costs through 2040.

Each year’s avoided unit capital cost is multiplied by that year’s peak-season savings to yield the figures in Column (b) of Table ES-4; the avoided unit O&M costs are multiplied by the total annual savings to yield the figures in Column (d). Present value of the program benefits is \$178,939, shown in Table ES-4.

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Table 4-3: PSP Table ES-4

Table ES-4 – Annual Costs of Avoided Projects						
Project: <u>Visalia Water Conservation Program Project</u>						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Alternative (Avoided Project Name): _____ Avoided Project Description:				Discount Factor <sup>(1)</sup>	Discounted Costs (e) x (f)
	Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Cost Avoided for Individual Alternatives (b) + (c) + (d)		
2014	\$2,200	\$0	\$3,801	\$6,001	1.000	\$6,001
2015	\$3,957	\$0	\$7,245	\$11,202	0.943	\$10,563
2016	\$8,673	\$0	\$10,938	\$19,610	0.890	\$17,453
2017	\$11,070	\$0	\$9,996	\$21,065	0.840	\$17,695
2018	\$13,319	\$0	\$9,934	\$23,253	0.792	\$18,416
2019	\$12,829	\$0	\$9,749	\$22,578	0.747	\$16,865
2020	\$14,673	\$0	\$9,566	\$24,239	0.705	\$17,089
2021	\$14,129	\$0	\$9,386	\$23,514	0.665	\$15,637
2022	\$15,992	\$0	\$9,333	\$25,325	0.627	\$15,879
2023	\$15,636	\$0	\$9,283	\$24,918	0.592	\$14,752
2024	\$12,274	\$0	\$6,692	\$18,966	0.558	\$10,583
2025	\$7,032	\$0	\$4,127	\$11,159	0.527	\$5,881
2026	\$1,701	\$0	\$1,325	\$3,026	0.497	\$1,504
2027	\$1,615	\$0	\$1,282	\$2,897	0.469	\$1,359
2028	\$1,698	\$0	\$1,241	\$2,938	0.442	\$1,299
2029	\$1,613	\$0	\$1,201	\$2,814	0.417	\$1,173
2030	\$1,533	\$0	\$1,163	\$2,696	0.394	\$1,062
2031	\$1,457	\$0	\$1,127	\$2,584	0.371	\$959
2032	\$1,256	\$0	\$1,092	\$2,348	0.350	\$822
2033	\$1,195	\$0	\$1,058	\$2,253	0.331	\$746
2034	\$1,020	\$0	\$1,026	\$2,046	0.312	\$638
2035	\$971	\$0	\$995	\$1,966	0.294	\$578
2036	\$819	\$0	\$966	\$1,784	0.278	\$496
2037	\$644	\$0	\$937	\$1,582	0.262	\$414
2038	\$519	\$0	\$910	\$1,429	0.247	\$353
2039	\$431	\$0	\$770	\$1,201	0.233	\$280
2040	\$176	\$0	\$391	\$567	0.220	\$125
<b>Total Present Value of Discounted Costs (Sum of Column (g))</b>						<b>\$178,621</b>
<b>(%) Avoided Cost Claimed by Project</b>						<b>100%</b>
<b>Total Present Value of Discounted Avoided Project Costs Claimed by Alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)</b>						<b>\$178,621</b>

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## Program Costs

Table ES-5 shows the total program implementation costs, which are assumed to be spread over three years (2014-2016). The program implementation costs are discussed in further detail in the Budget section (Attachment 5). The present value of these costs is \$658,486, which exceeds the present value of the program benefits listed in Table ES-4.

**Table 4-4: PSP Table ES-5**

<b>Table ES-5 – Annual Costs of Project (2014 Dollars)</b>										
<b>Project: <u>Visalia Water Conservation Program Project</u></b>										
	Initial Costs Grand Total Cost from Table 7 (row (i), column (d))	Adjusted Grant Total Cost <sup>(1)</sup>	Annual Costs <sup>(2)</sup>						Discounting Calculations	
			Admin	Operation	Maintena nce	Replace ment	Other	Total Costs (a) +...+ (g)	Discount Factor <sup>(3)</sup>	Discounted Project Costs (h) x (i)
Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
<b>2014</b>	\$210,647	\$210,647	\$34,865	\$175,782				\$210,647	1.000	<b>\$210,647</b>
<b>2015</b>	\$249,012	\$249,012	\$6,973	\$242,039				\$249,012	0.943	<b>\$234,819</b>
<b>2016</b>	\$237,642	\$237,642	\$13,946	\$223,696				\$237,642	0.890	<b>\$211,502</b>
<b>Total Present Value of Discounted Costs (Sum of column (j))</b>										<b>\$656,968</b>
<b>Transfer to Table ES-6, column (c), Proposal Benefits and Costs Summaries</b>										
<b>Comments:</b> Admin costs in column (c) consist of direct project administration costs and planning/design costs shown in Table 7. Direct project administration costs are allocated 40% to 2014, 20% to 2015, and 40% to 2016. The higher amounts allocated in 2014 and 2016 are to accommodate contract setup and final reporting tasks. The planning/design costs listed in Table 7 are allocated 2014 only. Operation costs in column (d) consist of the conservation program implementation costs listed in Table 7. The lower amount of implementation cost allocated to 2014 is due to the Turf Replacement Rebate Program not starting until the fourth quarter of 2014.										

## Summary

Table ES-6 is provided below to summarize the present value of the costs and benefits as they pertain to the Visalia Water Conservation Program Project.

**Table 4-5: PSP Table ES-6**

<b>Table ES-6 – Benefits and Costs Summary</b>			
<b>Proposal: <u>Kaweah River Basin 2014 Water Conservation &amp; Water Quality Protection Projects</u></b>			
<b>Agency: <u>Kaweah River Basin IRWMG</u></b>			
Project	Project Proponent	Total Present Value Project Costs <sup>(1)</sup>	Total Present Value Project Benefits <sup>(2)</sup>
(a)	(b)	(c)	(d)
<b>Visalia Water Conservation Program Project</b>	Cal Water / City of Visalia	\$656,968	\$178,621

**ATTACHMENT 1 – AUTHORIZATION AND ELIGIBILITY  
REQUIREMENTS**

**APPENDIX K**

**Deferred Capital Investments Calculations**

<b>Deferred Capital Investment Calculations</b>					
				<b>Long-Run</b>	<b>Avoided</b>
	<b>Project</b>	<b>% in</b>	<b>Peak</b>	<b>Capital</b>	<b>Long-Run</b>
	<b>Savings</b>	<b>Peak</b>	<b>Savings</b>	<b>Cost</b>	<b>Cost</b>
<b>Year</b>	<b>(AF)</b>	<b>Period</b>	<b>(AF)</b>	<b>(\$/AF)</b>	<b>(\$)</b>
2014	50	69%	34.6	\$64	\$2,200
2015	95	67%	63.2	\$63	\$3,957
2016	144	66%	94.6	\$92	\$8,673
2017	131	65%	85.3	\$130	\$11,070
2018	130	65%	84.9	\$157	\$13,319
2019	128	65%	83.6	\$154	\$12,829
2020	126	65%	82.3	\$179	\$14,673
2021	123	65%	80.4	\$176	\$14,129
2022	122	65%	79.9	\$199	\$15,992
2023	122	66%	80	\$196	\$15,636
2024	88	64%	56.4	\$218	\$12,274
2025	54	61%	32.8	\$214	\$7,032
2026	17	42%	7.1	\$235	\$1,701
2027	17	42%	7.1	\$231	\$1,615
2028	16	42%	6.7	\$250	\$1,698
2029	16	42%	6.7	\$246	\$1,613
2030	15	42%	6.2	\$241	\$1,533
2031	15	42%	6.2	\$237	\$1,457
2032	14	42%	5.8	\$210	\$1,256
2033	14	42%	5.8	\$207	\$1,195
2034	13	42%	5.4	\$182	\$1,020
2035	13	42%	5.4	\$178	\$971
2036	13	42%	5.4	\$155	\$819
2037	12	42%	5	\$126	\$644
2038	12	42%	5	\$104	\$519
2039	10	42%	4.2	\$102	\$431
2040	5	42%	2.1	\$82	\$176