AECOM

Appendix G

Non-potable Water Targets and Costs

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Appendix G Non-potable Water Targets

Table 1 summarises the estimated volume of water that should be met through non-potable sources to achieve the Think Water Act Water targets of a 25% reduction in potable demands, assuming 12% is achieved through water efficiency and 13% through non-potable sources.

Table 1 Progressive non-potable supply targets such that 13% of supply is met through non-potable sources

Year	Deficit (GL/yr)
2011	-
2014	0.9
2015	2.1
2020	7.8
2025	12.2
2030	13.2
2035	14.1
2040	15.1
2045	16.0
2050	17.0

A breakdown of costs for all schemes (from the Summary sheet of the model) is shown in Table 2

Table 2 Scheme costs breakdown

Source	Gungahlin & Yerrabi Pond	Lake Ginninderra	Lake Tuggeranong	Point Hut Pond	Inner North	North Weston Creek Pond	W19	WC4	LMWQCC	All
Source No.	5	7	8	11	18	47	48	63	69	-
Demands (ML/year)	901	1,684	1,168	77	518	268	149	23	9,704	14,492
Active storage volume (ML)	252	528	360	84	37	60	23	4	0	9,559
Yield (ML/year)	736	1,376	1,010	75	518	245	124	21	9,704	13,810
Pipe length (m)	15,122	41,265	45,211	3,473	10,405	9,808	3,083	1,565	104,589	234,522
Storage capital costs	$368,536	$533,454	$440,668	$212,774	$0	$3,377,880	$2,742,874	$245,054	$0	$7,921,241
Pump capital costs	$1,877,983	$1,165,790	$1,050,359	$184,168	$1,109,559	$600,059	$355,487	$54,251	$0	$6,397,656
Pipe capital costs	$9,921,770	$36,797,539	$33,291,991	$2,206,853	$7,316,039	$6,584,786	$2,037,408	$908,159	$163,846,560	$262,911,106
Wetland capital costs	$2,543,470	$4,750,992	$3,295,086	$218,408	$0	$755,117	$421,579	$64,337	$0	$12,048,989
Balancing storage capital costs	$12,761,501	$21,710,021	$19,540,941	$1,405,536	$7,861,396	$4,836,787	$2,766,761	$654,134	$86,458,840	$157,995,917
Groundwater capital costs	$0	$0	$0	$0	$184,933	$0	$0	$0	$0	$184,933
Disinfection capital costs	$360,912	$609,978	$538,803	$38,484	$219,670	$132,430	$75,602	$16,813	$2,554,192	$4,546,883
Storage annual costs	$309,665	$553,449	$407,701	$143,342	$0	$92,355	$57,595	$19,003	$0	$1,583,111
Pump annual costs	$515,194	$932,468	$649,804	$44,532	$296,507	$153,495	$85,957	$13,118	$5,318,142	$8,009,218
Pipe annual costs	$42,524	$118,659	$96,502	$5,007	$18,899	$16,085	$4,897	$1,715	$609,007	$913,295
Wetland costs	$68,119	$76,750	$57,804	$9,276	$0	$20,225	$17,845	$6,368	$0	$256,388
Balancing storage annual costs	$83,605	$146,573	$131,571	$9,374	$52,384	$32,339	$18,454	$4,864	$579,483	$1,058,648
Groundwater annual costs	$0	$0	$0	$0	$2,642	$0	$0	$0	$0	$2,642
Disinfection annual costs	$3,450	$5,832	$5,151	$368	$2,100	$1,266	$723	$161	$24,419	$43,469

Source	Gungahlin & Yerrabi Pond	Lake Ginninderra	Lake Tuggeranong	Point Hut Pond	Inner North	North Weston Creek Pond	W19	WC4	LMWQCC	All
Source No.	5	7	8	11	18	47	48	63	69	-
Sewage effluent supply annual costs	$0	$0	$0	$0	$0	$0	$0	$0	$6,792,947	$6,792,947
PV storage annual costs	$4,559,670	$8,149,270	$6,003,204	$2,110,646	$0	$1,359,888	$848,058	$279,810	$0	$23,310,547
PV pump annual costs	$7,585,988	$13,730,139	$9,568,055	$655,712	$4,365,928	$2,260,147	$1,265,676	$193,155	$78,307,094	$117,931,895
PV pipe annual costs	$626,149	$1,747,201	$1,420,938	$73,729	$278,278	$236,842	$72,105	$25,256	$8,967,333	$13,447,832
PV wetland annual costs	$1,003,023	$1,130,109	$851,136	$136,589	$0	$297,804	$262,759	$93,765	$0	$3,775,184
PV balancing storage annual costs	$1,231,044	$2,158,224	$1,937,315	$138,028	$771,333	$476,175	$271,727	$71,624	$8,532,611	$15,588,082
PV Groundwater annual costs	$0	$0	$0	$0	$38,899	$0	$0	$0	$0	$38,899
PV Disinfection annual costs	$50,805	$85,866	$75,847	$5,417	$30,923	$18,642	$10,642	$2,367	$359,553	$640,064
PV sewage effluent annual costs	$0	$0	$0	$0	$0	$0	$0	$0	$100,022,890	$100,022,890
Total capital costs	**$27,834,172**	**$65,567,774**	**$58,157,848**	**$4,266,224**	**$16,691,597**	**$16,287,059**	**$8,399,711**	**$1,942,749**	**$252,859,591**	**$452,006,724**
Total annual costs	**$1,022,558**	**$1,833,731**	**$1,348,533**	**$211,900**	**$372,532**	**$315,766**	**$185,471**	**$45,229**	**$13,323,998**	**$18,659,717**
Annual revenue	$2,575,297	$4,816,106	$3,535,661	$264,091	$1,813,292	$857,943	$433,740	$74,469	$33,964,735	$48,335,333
Present value of annual costs	$15,056,680	$27,000,810	$19,856,496	$3,120,121	$5,485,362	$4,649,498	$2,730,968	$665,977	$196,189,480	$274,755,393
Utility present value of costs	**$20,423,608**	**$54,136,514**	**$45,945,993**	**$3,164,364**	**$13,320,397**	**$9,832,906**	**$3,816,921**	**$1,200,001**	**$354,057,621**	**$506,122,157**
Total present value of costs	**$42,890,852**	**$92,568,584**	**$78,014,344**	**$7,386,345**	**$22,176,958**	**$20,936,557**	**$11,130,678**	**$2,608,726**	**$449,049,072**	**$726,762,117**
Present value of revenue	**$37,920,008**	**$70,914,845**	**$52,060,912**	**$3,888,611**	**$26,699,857**	**$12,632,798**	**$6,386,611**	**$1,096,519**	**$500,114,448**	**$711,714,610**
Present yield (ML)	**10,834**	**20,261**	**14,875**	**1,111**	**7,629**	**3,609**	**1,825**	**313**	**142,890**	**203,347**

Source	Gungahlin & Yerrabi Pond	Lake Ginninderra	Lake Tuggeranong	Point Hut Pond	Inner North	North Weston Creek Pond	W19	WC4	LMWQCC	All
Source No.	5	7	8	11	18	47	48	63	69	-
Utility Levelised Cost ($/kL)	$1.89	$2.67	$3.09	$2.85	$1.75	$2.72	$2.09	$3.83	$2.48	$2.49
Total Levelised Cost ($/kL)	$3.96	$4.57	$5.24	$6.65	$2.91	$5.80	$6.10	$8.33	$3.14	$3.57