



Coal fired potable hot water generation

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Running Cost Calculator

All costs exclude GST

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Hot water usage		Higher user	Medium user	Lower user
Inward temperature	Deg C	10	10	10
Stored temperature	Deg C	90	90	90
Daily consumption	Liters	1500	1300	700
Weeks per year		50	39	39

Storage losses	kWh per day	20.0	15.0	10.0
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Power requirement				
Water heating	kWh	49000	33124	17836
Storage losses	kWh	7000	4095	2730
Total	kWh	56000	37219	20566
Boiler running hours PA		2240	1489	823
Electricity for pumps and boiler	kWh	966	642	355

Running Costs					
Electric heating		\$	10640.00	7071.61	3907.54

Coal boiler					
Fuel required	tonne		13.7	9.1	5.0
Fuel		\$	874.59	581.27	321.19
Fuel delivery		\$	505.62	336.05	185.69
Electricity		\$	183.54	121.99	67.41
Labour					
Load coal	1/2 hour/ 1.25t	\$	136.65	90.82	50.19
Ash removal	1/2 hour per t fuel	\$	170.82	113.53	62.73
Annual maintenance (4 hours)		\$	100.00	100.00	100.00
Total coal		\$	1971.23	1343.66	787.21

Costs	Coal delivered	Cents per kW	3.5	3.6	3.8
	Own transport	Cents per kW	2.6	2.7	2.9

Savings					
Per annum					
Coal ex mine			9174.40	6064.00	3306.02
Coal delivered			8668.77	5727.95	3120.33

Criteria				
Coal	Kai Point		Unit	
Calorific value			mJ/kg	19.67
Cost ex mine			\$	64
Delivery; 7t @ 80km from mine			\$/tonne	37
Water: Specific heat capacity			kJ/kg degC	4.2
Conversion kJ to kWh			seconds	3600
Coal boiler output			kW	25
Coal boiler/circulating pumps electric load			A	1.25
Boiler efficiency				75%
Own Labour cost			\$ Per hour	25.00
Electricity		Cost per unit	\$	0.19