

Energy review for pump

Project: Condenser water pump energy saving potential investigation

System

Static head (m)	0
Dynamic head @ 100% flow (m)	22
100% flow (Litres/sec)	45

Pump

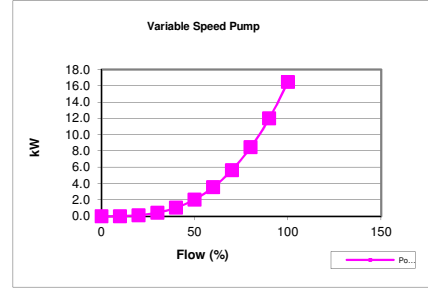
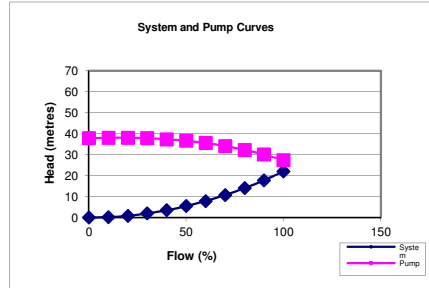
Pump model	Generic
Rated RPM	1450

Motor

Power(kW)	22
Efficiency	92%

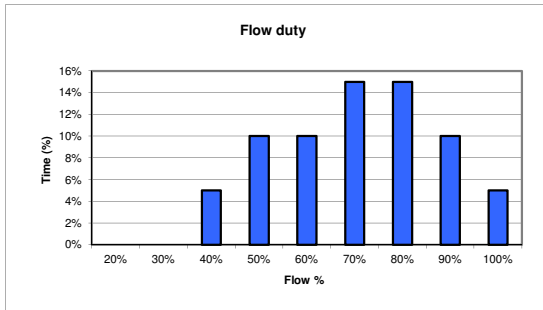
Pump performance data

Flow %	Head m	kW
30%	138%	11.0
40%	137%	12.3
50%	134%	13.6
60%	130%	14.9
70%	125%	16.2
80%	118%	17.5
90%	110%	18.9
100%	100%	20.2



Flow duty required

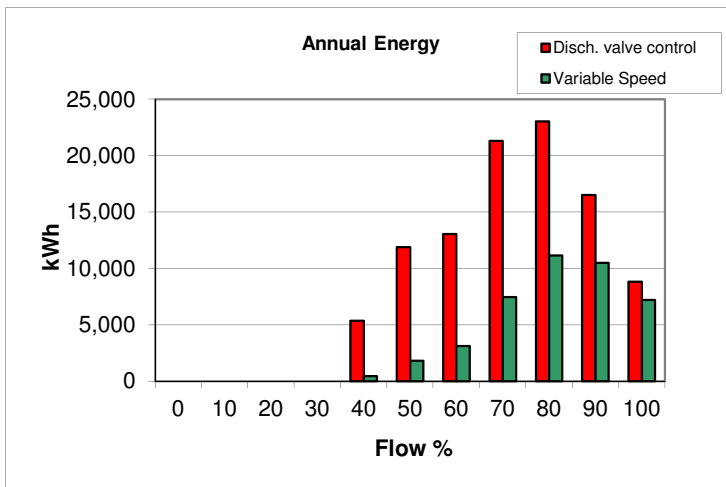
Flow	Time %	Annual hours	System head	Pump RPM	kW Hrs constant speed	kW Hrs variable speed
20%	0.0%	0	0.9	270	0	0
30%	0.0%	0	2.0	406	0	0
40%	5.0%	438	3.5	542	5,374	463
50%	10.0%	876	5.5	678	11,901	1,810
60%	10.0%	876	7.9	814	13,055	3,130
70%	15.0%	1,314	10.8	950	21,314	7,461
80%	15.0%	1,314	14.1	1,086	23,045	11,142
90%	10.0%	876	17.8	1,218	16,517	10,512
100%	5.0%	438	22.0	1,354	8,836	7,217 (Note 1)
Total	70.0%	6,132			100,041	41,735



Price per kW/h **Saving** **58,306 kWh PA**
\$0.20 **\$11,661 \$ PA**
CO₂ (note 2) **57 Tonnes PA**

Payback

Drive system capital cost including installation, engineering, shielded cabling, controls etc **\$9,930**
 Payback time (Years, based on kWh saving) **0.85**



Note 1. It is usual to specify some reserve capacity so that pump has no need to run to truly 100% speed.

Note 2. Calculated with the NSW Greenhouse Gas Reduction Scheme Pool Coefficient for 2012

