DEPARTMENT of AGRICULTURE WESTERN AUSTRALIA

Overview
Barriers and impediments at the Commonwealth and State level are restricting the use of Heat Pump Water Heaters (HPWH) as a viable alternative to Solar Water Heaters (SWH).

At the Commonwealth level the system appears not to be eligible for Renewable Energy Certificates (REC), through the Office of the Renewable Energy Regulator and at the State level the system does not qualify for a financial subsidy of up to $1,000 as available for solar units.

However, the energy efficiency of the HPWH from testing carried out the Department of Agriculture achieved an energy efficiency at least 40 -50% better than equivalent similar sized solar units.

Recommendation
Commonwealth and State Energy Programs are amended to allow HPWH to qualify for REC and the appropriate level of State financial subsidy.

The Department of Agriculture's Testing
To test the efficiency of HPWH, a unit was installed at the Department's Medina Research Station to the staff amenities block, to replace the existing electric storage unit. The unit installed was a 315 litre Quantum model "Titan Split Air 340-TI-E"

The water usage and energy used to heat the water was monitored and recorded, the results for the first 6 month period have indicated that the HPWH unit is more efficient than similar capacity electric/gas boosted solar hot water unit, and far exceeds gas and electric units.

In addition to obtaining hot water at more efficiently than to solar options, the "cold" exhaust air has been ducted from the HPWH unit and is used to supplement the existing air conditioning system, currently serving the staff lunch room.

In the first 6 months the HPWH heated 70,844 litres (~388) litres per day at an energy usage of 554Kw/h. The cost of the energy at the appropriate tariff of $13.94 cents/KW is $77 for 6 months or $154 per year. This compares very favourable with typical bench marking costs as documented by the Sustainable Energy Development Office (SEDO), Government of Western Australia, listed as follows:

Heater Type	**Cost per annum for 400 litres of Hot Water**
Heat Pump	$154 (Department of Agriculture Test)
Gas	$760 (SEDO Published Figure – 200 litre figures escalated)
Electric Storage	$1,300 (SEDO Published Figure – 200 litre figures escalated)
Solar + Boosting	$300 (SEDO Published Figure – 200 litre figures escalated)

Saving on air conditioning has not been factored into the above, and is an additional flow on benefit.

Conclusion
Testing by the Department of Agriculture has confirmed that the HPWH is around 50% more efficient than boosted solar options. On this basis it would appear that the non eligibility of the HPWH at a State level for subsidy funding and at a Commonwealth level for Renewable Energy Certificates, would discourage people from using this highly efficient form of water heating.

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