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To Whom It May Concern:

We write to you with concern to the recently released report from the Western Australian Office of Energy titled “Maximising the penetration of intermittent generation in the ‘’South West Interconnected System”.
As an introduction, Rheem Australia Pty Ltd is the largest manufacturer of electric, gas and solar water heaters in Australia.
Solahart, Edwards and Rheem have extensive manufacturing operations in Western Australia and is in a unique position to make balanced comments regarding the merits on the hot water industry at large and more specifically greenhouse efficient hot water systems and renewable energy technologies which reduce the reliance on electricity generation.

We also recognise that there are a number of issues and initiatives outlined in the draft report however, have confined ours to those listed below:

Meeting Renewable Energy 6 % targets by 2010

1) At estimated 16,000 GWhr total requirement – **the renewable target is 960 GWhr (includes industry).**
2) Less than half of the requirements are planned to come from Wind projects currently.
3) It is unlikely that wind and other available renewable energy initiatives will meet these targets however alternatives are available.
4) Solar hot water support and solar power generally could provide a meaningful reduction in electricity generation demand in domestic and some commercial applications on the grid.
5) Reduced energy demand defers the need to upgrade energy networks, providing further savings to the Government

Potential to develop scenarios for high penetration of renewable energy in the SWIS

1) Solar hot water heating in domestic and some commercial applications will provide alternative growth in renewable energy use against targets.
2) Subsidies are an essential support mechanism initially to drive uptake of solar in all areas.
3) The removal of State Government incentive on electric boosted solar hot water systems has had a detrimental effect on growth of solar installations and will continue to impact in all areas.
4) A subsidy of similar size to the current gas boosted solar hot water incentive would assist in reducing reliance on electric storage hot water systems throughout WA.
5) Further promotion of ‘’Time of Use’’ meters would also benefit peak usage issues.

Solar Hot water as part of a solution to achieving the targets and reduction in electricity demand in the SWIS

It is estimated that more than 25% of all hot water systems are **electric** in the WA market (ABS data on main source of energy used to heat water March 2002)

1) Approximately 18,000 electric water heaters are replaced or installed annually including a significant number in public housing.
2) Regional areas without reticulated natural gas have a larger number of electric systems installed due to rising LPG costs.
3) There are approximately 200,000 electric hot water systems in use throughout the state, and the majority within the SWIS.
4) Currently the available Western Australian domestic hot water system market is in excess of 80, 000 units per annum in the new housing and replacement markets.

Solar hot water is unlikely to be greater than 10,000 units of this total in the coming years, due to uncertainty about State Government subsidies, the recent Renewable Energy Certificate (REC) market price fluctuations and higher initial installation costs. This in turn represents less than 13% of the total available market.

However this is contrary to consumer support for higher cost renewable energy products that could be further re-invigorated with Government support. Industry does not anticipate long term subsidies or rebate programs, more simply a balanced longer term approach to establishing and then maintaining renewable energy or alternative technologies that in turn support WA manufacture and WA business.

If the number of installations of solar hot water systems were to double over the next 5 years it would have a significant beneficial effect on the SWIS generation issues. To assist this situation, the continued support of State subsidies and the re-introduction of the electric boosted subsidy are seen as critical to continued short term support and success.

- The ''Solar Hot Water Consultancy'' report concluded that the State subsidies previously in place resulted in significant growth of the SWH industry over a three year period: Average Annual Growth Rate of Solar Water Installations 2000/01 – 2003/04

	WA	Australia
Gas and electric boosted systems on new homes only	61%	30%
All gas-boosted systems	156%	32%
All electric boosted systems	12%	30%

The electric boosted subsidy should be increased to match the LPG subsidy where natural gas is not an available alternative and reflect a reasonable dollar amount in the metropolitan area, targeted at existing electric storage units being replaced with solar/electric on a time clock thereby shifting boosting to off-peak periods.

''Time of Use'' metering is seen as an initiative that would support the strategy and this could be supported by consumer education, re-enforcing the positive message delivered by power providers with the wide spread availability and promotion of these products. Current tariffs would need to be reviewed and reflect similar parity arrangements as is seen in other States.

The results would be a significant reduction in power usage in the SWIS and consumers would see this as a proactive initiative by the Western Australian Government to increase the use of renewable energy use in Western Australia.

The case to be considered – Financial and Environmental

If only 10,000 additional homes were converted to Solar Hot Water on the SWIS which currently use electric hot water systems, approximately 5% of the available electric hot water market, we would see the following:

1. Reduction in electricity use is approx **3300 kW hr per year per installation or a total of 33GW hr per year for the 10,000 units.

2. Off Peak power ''Time of Use'' meters would also be widely installed, a real opportunity with ''Time of Use'' metering is to move demand to off peak with the draft report states that there is low usage out of peak times on the SWIS.

    - SWH makes its maximum energy contribution during peak times in summer. This is particularly important as air-conditioners cause significant strain to the network.

3. Savings to the consumer for electricity tariff changes for correct use of ''Time of Use '' metering is documented and meaningful and with improvements to the tariffs, more acceptable to the consumer.

4. Pay back periods for solar installation using these scenarios are very acceptable and provide part of the solution to a secure responsible energy future.

5. Reduction in Carbon Dioxide gas emissions is approx 4.12 tonnes per system installed or a total of 41,200 tonnes for the 10,000 installations

6. The ''Solar Water Heater Consultancy'' report also concluded that Solar Hot Water systems produce smaller amounts of GHG's compared to other water heating options – as little as 5 tonnes of Co2 equivalent for a gas boosted SWH over 18 years in WA compared to up to 81 tonnes of Co2 equivalent for an electric storage water heater

7. Approximate equivalent in trees needed to be planted to offset and sequester Carbon Dioxide emissions would be 1000 per system or approx 1 hectare or a total of 10 million tree plantings for the 10,000 installations or a total of 10,000 hectares to negate the environmental impact of not using solar over fossil fuel for electricity generation.

References used

1. Reduction in energy use of solar systems is calculated using average running costs and can vary according to usage, Carbon Dioxide gas estimates are for coal fired electricity generation
2. **Solar contribution estimate and electricity KW saved for a family sized system, is electric boosted on roof 300 litre solar system compared to a 125 litre storage Electric
3. Attached is the ''Solar Hot Water Consultancy'' report
4. There is a higher percentage of electric hot water systems in regional areas where natural gas is not available, and due to rising LPG costs
5. Reductions in power usage around the home is calculated using published data from the Office of Energy WA and Western Power Corporation
6. Tree plantings in the South West of WA are approximate and are calculated using the AGO toolbox for carbon equivalents, and, estimates made on trees at an average age of 6 years

Compiled by: Bruce Diamond - State Manager Solahart WA – 19th January 2006

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