

To the RIS,

If the Australian government wants to be serious about energy efficiency, then only by taking into account the total embodied energy of the "energy efficient" product and its ongoing performance, through its service life can the program reduce CO<sup>2</sup> emissions.

The energy and CO<sup>2</sup> production required to operate mines, transport resources to ports, ship overseas, manufacture, return shipment, transport from ports to city around the country by rail and truck to reach outlets to be delivered to homes in many cases is likely to be greater than the upgrade of a product to seek a higher home ratings (e.g. disposing 1 Star rated air-conditioner for 6 star, that may be only used rarely). Significant amounts of energy is also used in each of the workers travelling to work and back each day, whether it be in vehicles in China or aircraft transporting Australian miners.

**With reference to p.23 Part 1. .**

During the consultation in Perth, I made mention of the fact that if the building's thermal performance (BTP) is high, then the efficiency of the heating and cooling systems is almost irrelevant.

If a home is poorly rated, investment into the BTP should be the only way to increase the rating of the home and not through the purchase of a heater or cooler or other appliances.

**Part 2.**

In Part 2, the report is suggesting that water usage, renewable energy and pools/spas may not be included in the rating of the report as they are either not present in the majority of homes, or, they post particular challenges in creating a quantifiable comparative measure.

***Renewable Energy***

Solar panels may not represent the majority of households, but they are popular and generate quantifiable energy. There are variables to influence the amount of generation including location, efficiency, age, aspect and tilt, but this information is documented and can be averaged out to provide representative values in those homes. These variables would be no more complicated than calculations used to quantify hot water systems that depend upon factors including size, location, distance water travels in pipes, differential temperatures, the temperature water is set to, the number of persons in the home, the length and frequency of showers, the flow rate of taps and showers and time of day water is being used. I am unable to identify the challenges that prevent Allen Consulting Group from including renewable energy in the rating of a home.

If a home generates renewable energy to meet all of its needs, then it is irrelevant what type of electrical equipment it contains and even its BTP. An energy intensive electric hot water system, a well used heater, cooler, halogen lighting, clothes drying etc is not generating any CO<sup>2</sup>. If solar panels cannot be included in the star rating of a house I would have to question the value in this program.

The question must be asked, why would a \$20,000 investment into a 100% renewable energy source of a home be overlooked, when the potential to upgrade from a 1 star to 6 star air-conditioner can potentially add value to your home that is 100% reliant on coal generated electricity?

### **Swimming Pools - energy and water**

Pools like solar panels are not found in the majority of homes but are fairly common. They often consume more than 50% of a householders total energy use through mechanical filtration and chlorination (up to 10 kilowatts of energy per day).

There now exists (and I sell if you want to check them out on [www.carboncheaters.com](http://www.carboncheaters.com)) 5 and 8 star MEPS pool pumps. These are more energy efficient than the standard pool pumps by some 80%. There are a range of different pumps on the market that incorporate energy efficiency, some rely on rare earth magnets and the ones I have online reduce energy through reduced friction in water flow (3 speed).

If a pool holds 50,000 L of water in Perth, then 50,000 L of water will be evaporated each year if there is no pool cover, if the pool is covered only 2,500 L of water will be lost to evaporation. This is a comparison and is quantifiable in all Australian locations determined through PAN evaporation rates. It would be negligent to overlook this significant amount of water that can be compared and quantified through PAN evaporation rates.

### **Water**

I am also confused as to why water cannot be compared or be quantitatively. It comes out of taps or shower heads and has a measureable flow rate. If any confusion of which tap or shower the water is coming from, I suggest use a 12 month history of water use on that property and divide that figure by the number of permanent occupants and/or size of the house to get a figure that indicates that property. Similar results can be used through the use of annual consumption of gas and electricity and may provide a useful data set for that homes future history with different occupants.

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