

Double Glaze Matters

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Hot Water Services & Legionnaires Disease

Last month I suggested you turned down the temperature on your hot water service to save emissions. I got a lot of responses on it! Most pointed out that doing so could lead to Legionnaires disease. The general consensus is that the bacteria grows below 50 degrees, survives up to 55 and dies out over 55 degrees. The general recommendation is to store hot water above 60 degrees.

This article is probably the most succinct. <http://www.treehugger.com/green-food/is-it-safe-to-turn-down-your-water-heater-temperature.html>

So I looked at the issue of whether we are justified in running our hot water systems at 60 degrees to protect ourselves if it puts other lives at risk from Climate Change. Here is a fairly complex analysis of the issue. If your head

starts spinning, just skim through to the last few paragraphs. They are well worth reading!

So, how many people will die from Climate Change if all Victorians turn up their hot water services from 50 to 60 degrees?

Let's start with how many people will die in total from Climate Change. There are cataclysmic figures of 90%. While defensible, I think this is unlikely. I believe 10% is more likely. This is based on a very rough idea that Climate Change will drop the world's food production by 30% leading to a population reduction of 10%. So, let's go with 10% and revisit it later.

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The world's population is 7 billion. Therefore 700 million (10%) will die from Climate Change. This will occur over 50 years, so 14 million will die each year.

20% of emissions come from homes so 3 million a year will die from home emissions. Hot water makes up 20% of home emissions, or 600,000 people a year.

Turning down your water temperature from 60 to 50 degrees (see insert) will save 5% of your hot water energy requirements, or 30,000 people a year.

Victorians (6 million) make up .2% of people in the world with hot water services (3 billion).

So, if all Victorians ran their hot water service at 60 rather than 50 degrees, it would cause the death of 60 people a year.

How many people would die from Legionnaires disease? I spoke to the health department (see insert) and the annual death rate from Legionnaires disease in Victoria due to hot water services is less than .1.

Probably 5% of people already run their hot water service at 50 degrees, so if we all did it, 2 Victorians would die each year. Compare this to the earlier figure of not doing it causing 60 Climate Change deaths a year.

The weakest point in my argument is the percentage that will die from climate change. 10% is a big number. You could reduce it to 1%, but going less than that is pretty optimistic, so this reduces the 60 figure to 6—still higher than 2 dying from legionnaires disease.

So, from a world perspective all Victorians should reduce their hot water service from 60 to 50 and then monitor the number of deaths from Legionnaires disease. If it is less than 6 per year we should continue doing it.

Would we? Probably not. Off the 6 (or 60) dying from Climate Change, none are likely to be Victorian—most deaths will occur in 3rd world countries, not 1st world countries.

Even if you disagree with my calculations, it raises a major philosophical argument. Should a group of people take actions which reduce their number of deaths, if it causes a greater number of people elsewhere in the world to die?

I think we have no such right, especially if those dying (third world people) do not benefit from the hotter water.

And another thing. If you accept my early figure that 10% of the world's population will die from Climate Change, this means that the emissions of 10 average

Legionnaires Disease in Victoria

I spoke with the Vic Dept Health expert and he said:

-Approx 60—80 Victorians get Legionnaires Disease each year in Victoria

-Less than 5 die

-In 14 years he knows of only 4 cases traced back to Hot Water services, although some may have occurred and not been traced back

Its safe to say that less than 1 person per year contracts legionnaires disease in Victoria from hot water services running at 50 degrees.

The death rate would be less than .1

emitters in the world, will kill 1 person. Australians emit 10 times the world average. So the emissions from each Australian will lead to the death of 1 person. A sobering thought.

This is one reason why I think Climate Change is the "biggest moral issue facing mankind".

Hot water and Tempering Valves

Several pointed out that my analysis of hot water services ignored tempering valves. This is a device attached to the hot water service to mix cold water with the hot water from the hot water service to ensure the water going to the house does not exceed 50 degrees.

This means that the savings I calculated only apply if the water is stored at less than 50 degrees.

But there is still a saving. In a hot water service, about 25% of the heat is lost from the tank.

Reducing the temperature from 60 to 50 means the temperature difference (Hot water to air temperature) reduces from 45 degrees to 35 degrees. This is more than 20% giving a 20% reduction in heat loss, or 5% reduction in heat usage.