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WATER'S CARBON FOOTPRINT: THE DESAL FACTOR

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It's obvious to most South Australians that climate change has aided in this country's vulnerability to drought and the subsequent, and ever-increasing, shortage of available water. This has driven the SA government to implement legislation including water use restrictions, mandatory installation of rainwater tanks in all new structures and the development of a major desalination plant to decrease South Australia's dependence on Murray River water and, ideally, attain the 'holy grail' of Australia – water security.

And yet, a lack of water shouldn't be the only issue pushing for an increase in water efficiency and conservation – every litre of water utilised also has an associated amount of greenhouse gas emissions. Meaning, the more water you use, the more you contribute to the primary cause of the shortage.

Truth be told, the greenhouse gas emissions attributed to water are small in comparison to other climate change contributors such as transport or agriculture. However, if you're embarking on the quest to calculate your carbon footprint, whether personal or professional, water consumption should factor in. The main components of water's emissions come from the energy used in pumping, transport, infrastructure development/upkeep and treatment, which amount to an annual average of 142 kg of CO₂ equivalent emissions (CO₂e) per person for mains water and 46.7 kg CO₂e per person for wastewater in South Australia.

Yes, water is essential and South Australia has come painfully close to completely breaching its limits. Without the addition of a substantial source of water outside the Murray and our reservoir network we risk a complete collapse of South Australia's

agriculture. Currently, there are two alternative sources of water in SA; recycled wastewater and harvested stormwater. Both of these can help alleviate the thirst of agriculture, but have been deemed unsuitable for human consumption. The construction of a desalination plant is therefore inevitable to provide a secure source of potable water well into the future.

However, with the eventual addition of desalinated water to the mains water supply, the greenhouse gas emissions for delivery and treatment of water in SA will increase dramatically due to the energy intensive process of desalination. It's important to keep in mind this considerable boost in carbon costs.

While we may become closer to true water security with desalination, a substantial growth in the carbon footprint of our water should maintain strong pressure for continuing the expansion of water conservation across SA, specifically, expanding the use of 'low emissions' water. The ideal is further study and implementation of Aquifer, Storage, Transfer and Recovery schemes and the treatment of wastewater to potable standards, which can provide nearby communities with drinking water that will not have to travel far, and more importantly, will not require energy expensive desalination.

As the Rudd government pushes forward in its commitment to substantially decrease Australia's greenhouse gas emissions, every Australian will be required to slowly adopt low emission lifestyles in a carbon constrained future. That means being acutely aware of your emissions impact – even that of your water's carbon footprint.

