

RECYCLING vs. DESALINATION COMPARISON

The following is a comparison between recycling (Eastern Treatment Plant) and desalination (Wonthaggi) projects both designed to deliver a similar volume of potable water to the city of Melbourne, Australia.

Details of this cheaper and sustainable recycling option are contained in a document that has been denied release via a Freedom of Information request by the Clean Ocean Foundation.

Indirect Potable Reuse (IPR) <i>Easter Treatment Plant > Melbourne</i>	Desalination <i>Wonthaggi > Melbourne</i>
Project Infrastructure: \$1.86 billion ✓	Project Infrastructure: \$3.1 billion ✗
Treatment energy cost: 10% of desalination ✓	Treatment energy cost: 10 x recycling ✗
Water quality produced: Potable* ✓	Water quality produced: Potable* ✓
Environment: Low CO2 equivalent gas emission ✓	Environment: High CO2 equivalent gas emission ✗
End of ocean outfall discharge ✓	Brine & chemical outfall to marine environment ✗

* Recycled wastewater and desalinated water are impossible to tell apart if both have been treated using the same reverse osmosis method. Refer to www.cleanocean.org for further information.

Assoc. Prof. Sandra Kentish, University of Melbourne Department of Chemical and Bio-Molecular Engineering, reverse osmosis technology team leader, 2008

Source of figures

Project Infrastructure: 'Water Smart 'Water Supply - Demand Strategy for Melbourne' (Water Substitution) April 2006. City West Water, South East Water, Melbourne Water and Yarra Valley Water
 Treatment energy cost: *Developing alternative urban water supplies, Greg Leslie, UNESCO Centre for Membrane Science, UNSW, Kensington NSW, October 2007*
 Co2 emission: *Developing alternative urban water supplies, Greg Leslie, UNESCO Centre for Membrane Science, UNSW, Kensington NSW, October 2007*
 Brine & chemical outfall: *Sabine Lattemann, of the Institute for Chemistry and Biology of the Marine Environment at the University of Oldenburg Germany, Chair World Health Organisation WHO committee -environmental impact assessment studies of desalination plants*

Addendum

The definitive economic figures rest with the Victorian Government in the report *Water Supply - Demand Strategy for Melbourne' (Water Substitution)*, April 2006, written by GHD for WaterSmart, a joint project team of City West Water, South East Water, Melbourne Water and Yarra Valley Water.

Clean Ocean Foundation is a registered non profit environment organisation, founded in Victoria in December 2000 to protect our ocean ecosystems and establish sustainable water management practices. Clean Ocean's prime objective is the attainment of full recycling of wastewater from Australia's 144 ocean outfalls as an alternative to polluting our oceans and waterways.