

A selection of water supply options that could be implemented in the next 2 to 4 years, giving water security, and a chance to build a sustainable water supply. Includes existing commitment to ETP upgrade in establishment cost.

Option	Discussion	Quantity of water available from this option in timeframe (gigalitres) (GL)	Percentage cost to establish this option compared to seawater desalination from Wonthaggi	Percentage ongoing cost of water as compared to seawater desalination from Wonthaggi	Percentage carbon emissions as compared to seawater desalination from Wonthaggi
Dual flush cisterns	Prof. John Langford states that '18 gigalitres could be saved by replacing the remaining single flush toilets in Melbourne'. If the government paid for their manufacture and employed plumbers or retrained the unemployed, 15 GL could be sourced in the timeframe.	15	50 %	0 %	0 %
Rainwater tanks, half subsidized by Govt.	Not everyone wants a rainwater tank, but assuming that up to a quarter of people with suitable roofs still do, then this option would likely be taken up by them. Marsden Jacobs give a figure of over 1 gigalitre per 1% of suitable roofs.	25	100 % in subsidy (+100% by owner)	60 %	10 %
Flood diversion weir on Aberfeldy River and tunnel to Thomson Dam	Floods on this river cause destruction to down stream irrigation and other infrastructure, and potentially lead to algal blooms in the Gippsland Lakes. Although they may only happen infrequently, large quantity of water can be stored by capturing a portion of these flood events when they occur, thus mitigating the destruction they cause. Quantities available are averages expected over time under climate change impacted river flows.	20	25 %	10 %	0 %
Storm-water capture, treatment and use	Although this option is potentially very advantageous, with up to 200 gigalitres said to be feasible, the difficulty is storing the water in the period before treatment. Disconnected local reservoirs, old quarries, aquifers, existing and purpose built stormwater holding facilities, etc. could all be used. As an example a 1 GL quarry could cycle through up to 5 GL of water over a year. Assume 5 GL of old reservoirs/quarries gives 20 GL, 2 x 5 GL aquifer storage schemes cycles through 20 GL, 10 GL of existing or new stormwater holding.	50	50 %	20 %	10 %
Recycling for both river swap and direct non potable reuse	A business case with the Government right now is for the completion of their promised upgrade of the Eastern Treatment Plant to Class A water, and the piping of 110 gigalitres to the Yarra River for both environmental flows and to allow additional pumping to Sugarloaf Reservoir. Some use in industry and new subdivisions could also be made of the water along the pipeline route. Assume 42 GL additional Sugarloaf pumping, 20+ GL supplying required environmental flows and 10 GL use along route.	72	45 % if not including existing promise to upgrade ETP ----- (75% if considering full cost)	50 %	50 %
Totals for full option volumes compared to a 150 GL Wonthaggi seawater desalination plant		182	63 %	42 %	29 %
Totals for supplying the same volume from these options as from Wonthaggi seawater desalination		150	52 %	35 %	24 %

44% THE CARBON EMISSIONS OF SEAWATER DESALINATION

CLOSE TO 1/3 THE ONGOING COST OF WATER

CLOSE TO 1/2 THE INITIAL ESTABLISHMENT COST