

# Futureproofing Melbourne

## the constraints of the future: this is what your world looks like in 2099

### Stationary energy:

- no natural gas available for domestic use – residential market was priced out in the 2070s and now only people at the RSL or your nanna say “Now we're cooking with gas” when things are going well.
- Victoria still has one, but only one, coal-fired power station in the LaTrobe Valley, providing 2000 MW of baseload power and will do so for the foreseeable future. There's no shortage of brown coal, but it's also been found that there's no such thing as “clean” coal, at least not yet.
- For the group to decide where the rest of the stationary energy comes from, and how much of it there is.

### Transport energy:

- Peak oil happened forty years ago.
- Liquid petroleum products are no longer available to the residential market. There is little affordable for import. Australia's internal supply is smaller than our transport needs demand, and it's high-end industry suitable rather than good for transport, so that's where it mostly gets used – in industry, or manufacturing.
- Biofuels – ethanol and biodiesel – have some limited availability nationally, particularly in Queensland and northern parts of the Territory and WA, but their availability in Victoria is limited largely to re-use of waste products such as vegetable oil (see the Food section).
- For the group to decide how people get around, and when and what for.

### Water:

- Average rainfall has dropped by 100mm to 450mm per year in the western half of Melbourne and 600mm per year in the eastern half, an average 15% drop from 2000. Water runoff from rain has consequently decreased by 40% from 2000 levels. Summer rainfall is now limited to the occasional large flooding storm, typically two or three per season, and otherwise there is no significant rainfall between December 1 and April 1. Spring rains, formerly our greatest source of water for drinking and crops, are now only 70% of what they were in 2000, and across the state the peak water month in each area is one month earlier than it was in 2000 (in Melbourne it's now August and September instead of September and October).
- The Melbourne Water catchments are still in good condition thanks to conscientious planning and aggressive protection on the part of the various State governments and water authorities. The water they provide is good quality, but they can provide only 1,086,300 ML per year on average, and can only be relied on to provide 905,500 ML per year. Most dams have been overflowing about once every thirteen years due to climate variability.
- The North-South Pipeline worked well for a few decades but is now considered a white elephant. Increased climate variability means that in a year of low water in the Melbourne catchment there is even less water in the Goulburn catchment, and the Goulburn water has been prioritised for food production under the State's Water and Food Rights bill of 2064.
- Water supply to the city is supplemented and protected by a desalination plant, however this is close to the end of its lifespan and will need to either be replaced with a new one or a new

solution found.

- Permanent water restrictions apply to use of fresh water, similar to those we have currently. The successful “target 155” program still means Melburnians consume around 500,000 ML a year in their homes, half what the catchments can be relied on to provide.
- For the group to decide what other water sources are available or can be used, what systems have been put in place to do so, and how “wet” a city we have.

#### Waste, pollution and emissions restrictions

- Total allowed greenhouse emissions for the nation are at 5% of 1990 levels. Most of this is allocated towards unavoidable emissions from bushfire and agriculture, with the remainder providing leeway to “necessary and irreducible” services such as hospitals. It's expected that domestic stationary and transport energy use will be zero-emission.
- Water quality pollution restrictions have been tightened in order to conserve the water supplies we have in the best of conditions.
- Air quality pollution restrictions have also been tightened to reduce incidences of air-quality-related medical incidents. These have increased due to higher amounts of topsoil-dust and smoke, a lengthening of the high-pollen season and a longer hot season which aggravates many breathing conditions.
- The sewage system designed and built with foresight in the 1890s is still working well, though getting close to capacity, and new estates are frequently being built outside its reach. For the group to decide whether sewage handling has changed radically or whether our existing system has just been added to and scaled up (which is feasible).
- There is still no limit on landfill – while recycling is encouraged, there are still plenty of spaces within a suitable transporting distance where councils can place landfill, and old landfill sites are able to be reused towards the compulsory public open space requirements.
- The main limit on rubbish is the need to recycle as much plastic as possible due to the unavailability of oil – recycling most types of plastics has become more cost effective than making fresh. Many formerly-plastic products are now made with cheaper materials.
- For the group to decide if there are any changes to the way recycling and rubbish are handled, and the way waste is created.

#### Food and services

- Broadband internet is now a standard service, like electricity and the telephone in 2000.
- Arable land available in the state is 11 million hectares, down from 13.9 million hectares in 2001. The drop is due to pastureland being converted to housing, and soil destruction through salinity and/or improper usage. This gives just under one hectare of arable land per person in the state.
- Victoria still grows almost 30% of the total food in Australia and is relied on by other states to provide a percentage of their fresh food, including 45% of the country's dairy industry. Much of the dairy industry formerly located in the Murray River Basin has moved south of the Great Dividing Range where rainfall has been more reliable, competing with outer suburban developments for space. The quantity of food needed puts sufficient pressure on water and space resources to make growing energy crops largely infeasible.
- For the group to decide where sufficient food can be grown and how it is to be transported and distributed.
- For the group to decide how people access key services such as medical, educational and

government services.

### Population, housing and land

- The population of Australia is 45 million people, 28% of whom are over 65. Victoria is now only the third-most-populous state (NSW and Queensland have more), with 11.5 million people. 69% of these live in the capital, giving a population for greater Melbourne of 7.9 million, now the largest of the state capitals (Sydney is second with 7.65 million).
- A continuing State government policy of growing upwards and not outwards has helped keep population density fairly even throughout the area within the Ring Roads.
- Outside of that suburban sprawl reaches uninterrupted along the major highways to Seymour, Ballarat, Geelong, Woodend, and Warragul, with other tree-change pockets spread throughout Gippsland, through the Bunyip-Cockatoo-Warburton area and up to Yea. The tree-change areas are more sporadic as every five years at least one town is destroyed by bushfire, so there are regular population shifts back and forth between the main metropolitan area and the tree-change towns.
- Some high density pockets have formed in places inside the inner ring, accompanied by the usual social pressures. The high density redevelopments of the early 2010s are now at end-of-life or past.
- Several Melbourne councils have put height restrictions in place in high-density zones in order to manage damage from climate-change-induced increased-frequency high wind speeds – buildings are kept to the same storey height across a block.
- Racial demographics are much as they were in 2000, although the percentage of Australians with an Islander or Pacifica background has doubled due to refugees from drowning island countries. These refugees have formed the most recent racial-group-of-choice-to-insult.
- For the group to decide where high density living should be, and how dense it should be.
- For the group to decide if any boundaries should be placed on continuing urban sprawl.

### four types of future to discuss

	familiarity wins	radical change
slow change (evolution)	“business almost as usual”	“energy descent”
fast change (revolution)		“apocalypse”