

**What will Australia be like in the  
year 2050 –  
in the context of the ATSE  
Symposium Theme?**

Future-Proofing Australia:  
Rising to the Challenge of Climate Change

**By Beata Khaidurova**  
Monash University

# What will Australia be like in the year 2050?

~ ~ ~

*“As for the future, your task is not to foresee it, but to enable it.”*

*~ Antoine de Saint-Exupery (1900 – 1944)*

~ ~ ~

Many predictions have been made about the future, and many of these have focused on scientific discoveries and technological advances. When we think of the future, we often dream of teleportation, flying cars, and humanoid robots. While this may seem wonderful to many, the futures of our flora, fauna, and atmosphere are often neglected in these thoughts. Recently, there has been more awareness developing as to the impact our lives are making to the planet. The government is finally starting to take notice of what many people have feared for years – that greenhouse gases are slowly killing our planet. The Emissions Trading Scheme, the Government Energy White Paper, and the United Nations Climate Change Conference may soon be putting a lot of pressure on individuals and on industry to change their habits, and produce less greenhouse gas emissions. What Australia will be like in 2050 is not something to dream about – it is something we can plan, something we can create. There are many new technologies being developed to abate emissions, and we can only hope these will be implemented in the near future. 4 major emission sectors, and the types of changes they may undergo between now and 2050, are discussed below.

## Electricity generation

With the generation of electricity in Australia producing approximately 37% the greenhouse gases released nationally each year<sup>1</sup>, the power generation industry is set to experience many changes in the next few decades to keep it on target. Looking at the last few decades, we can see the steps to a greener future are already being taken. Wind farms are gaining in popularity, and are a good start. By 2020, it is expected that wind farms will provide approximately 12% of the world's energy<sup>2</sup>. This will be the result of not only an increase in the amount of turbines in place, but also of new technologies to improve the current process, such the development of the Australian Wind Energy Forecasting System. However, wind farms can't be relied upon as a main power source, as the wind itself is not reliable.

Another renewable energy source already being used is solar. This is a bit different to most methods, as the solar panels are put directly where the power is needed, so the losses over transmission lines are generally also reduced. Government incentives may increase the use of solar power in homes. Otherwise, large scale solar generation

---

<sup>1</sup> <http://www.acfonline.org.au/consumptionatlas/>

<sup>2</sup> [http://www.webwombat.com.au/careers\\_ed/education/wind-farms.htm](http://www.webwombat.com.au/careers_ed/education/wind-farms.htm)

stations may be developed, as a supplementary power source for Australia. Once again, however, relying on the weather for generation may not secure our power supply, but instead make it unreliable. The same can be said for hydro power, which used to be seen as quite a reliable source of power. Recently, hydro power stations have been out of action in Australia, as the drought has affected the water flow in most of the areas used for power generation in this way. A larger scale, and more reliable, solution is required.

Nuclear power, while not renewable, has to be mentioned as another possible source of energy, producing no emissions, but coming with a range of other problems, such as the issue of how to dispose of the nuclear waste. While many people are strongly against it, for reasons such as the Chernobyl disaster, it is something the government has been considering, and perhaps by 2050 we will have the technology to deal with nuclear power safely. Perhaps the safest and most reliable energy source that current technology allows is using biomass products as fuels. Biomass fuels can be grown specifically, or the byproducts of other crops can be used. While the burning of biomass fuels does produce greenhouse gases, this fuel can be carbon neutral, due to the fact that in growing the crops, the plants absorb the carbon dioxide back out of the air. It is also important to capture any methane that is released in the burning process.

Obviously, there is no simple solution to the amount of emissions being created by the electricity generation industry. However, by 2050, there will probably be an increase in the use of most of the renewable energy sources discussed. The amount of wind farms and solar panels throughout Australia should skyrocket as more people become aware of the effect emissions are having. Biomass crops will be used to fuel power stations that were once run on coal, and perhaps we will have discovered some sources of power that are, at the moment, inconceivable.

## **Transport**

Whether transporting people or goods, the vehicles on our roads, on our seas, and in our skies are a large contributor to the amount of greenhouse gases in our air, producing about 13.7% of all greenhouse gases released in 2006<sup>3</sup>. The affects of transport on our atmosphere were well demonstrated at the 2008 Olympic Games, in the difference it made to the air quality in Beijing when cars were banned from the roads for just a few days. In Australia, with the population, and the average number of cars owned per person increasing, things are only going to get worse, unless action is taken. Some predict that by 2020, the amount of carbon dioxide released by the transport industry will increase by 109%<sup>4</sup>.

There are many ways this can be avoided. Already, many people are starting to be smart about the ways in which they travel. Simple things, such as walking, riding a bike, taking public transport, or carpooling, can help decrease the carbon footprint of travel. Buying products that are locally made can also help, reducing the carbon emissions produced in transport. In 2050, the public should be much more aware, and most people will be as conscious of reducing transportation emissions as we are of

---

<sup>3</sup> <http://www.aph.gov.au/library/Pubs/ClimateChange/whyClimate/human/howMuch/transportation.htm>

<sup>4</sup> Ibid.

saving water. Of course, it will also take some bigger steps to truly solve the problem. Producing vehicles that have low emissions is another approach. There are already hybrid cars on the market, and biofuel cars are in development.

By 2050, there should be a range of low-carbon fuelled vehicles on the market, in a variety of price ranges and sizes, to meet everybody's needs. The production of conventional cars should be slowly phased out, but only when appropriate alternatives exist. Of course, until our travel is carbon neutral, there will always be work to be done.

## **Minerals industry**

An often forgotten contributor to Australia's greenhouse gas emissions, the minerals industry is already working towards greener technology for the mining and processing of minerals<sup>5</sup>. This comes after scares that over 23,000 jobs may be lost in the minerals industry by 2020, due to the impact of the government's Carbon Pollution Reduction Scheme<sup>6</sup>. Clearly, if the industry does not reduce its emissions, it may not be able to survive when strict legislation guarding emissions is made.

There are many new technologies being developed to combat this problem, some of which should be put to use by 2050. These include using a single stage iron-making process called HIsMalt, using renewable biofuels instead of charcoal, dry granulation of slag, strip casting and waste heat recovery<sup>7</sup>. With further research and development taking place, by 2050 these, and many other emission reduction techniques, will be in use in the minerals industry, and with careful management, jobs in these areas can remain secure.

## **Land management**

Management of deforestation, fire, and grazing land can all contribute about 16 – 20% to our national carbon emissions each year<sup>8</sup>. Sources of greenhouse gases in these areas include the decay of organic materials, the emissions from burning plant materials, and the use of soils and fertilisers. Additionally, deforestation reduces the amount of greenhouse gases absorbed from the atmosphere through plant life. There have been several papers written on the topic of land management recently, developing awareness of the steps that can be taken to reduce its impact on our atmosphere.

One of the most obvious is to cut back on deforestation, and to re-vegetate cleared areas. Simple things, like printing on 2 sides to save paper, and generally reducing the packaging on our products, can go a long way to reducing the amount of our forests being cut down each year. By 2050, most land owning businesses, such as farming

---

<sup>5</sup> <http://www.csiro.au/resources/MineralsIndustryGHG.html>

<sup>6</sup> <http://www.im-mining.com/2009/05/22/australia-could-lose-over-23000-mineral-industry-jobs-by-2020-under-emissions-scheme/>

<sup>7</sup> <http://www.csiro.au/resources/MineralsIndustryGHG.html>

<sup>8</sup> <http://www.treehugger.com/files/2009/09/epa-study-greenhouse-gas-emissions.php>

businesses, should be aware of which fertilisers they should be using, and how they can best utilise their land, for everyone's benefit.

~ ~ ~

As John M. Richardson said, *'When it comes to the future, there are three kinds of people: those who let it happen, those who make it happen, and those who wonder what happened.'* We do not want to be in the position of letting things go on as they are, or of waking up one morning and wondering what happened to our Earth. Instead, we should be the ones that make the future happen – this way, in 2050, Australia can be whatever we want it to be.