

POSITIONING VICTORIAN INDUSTRY

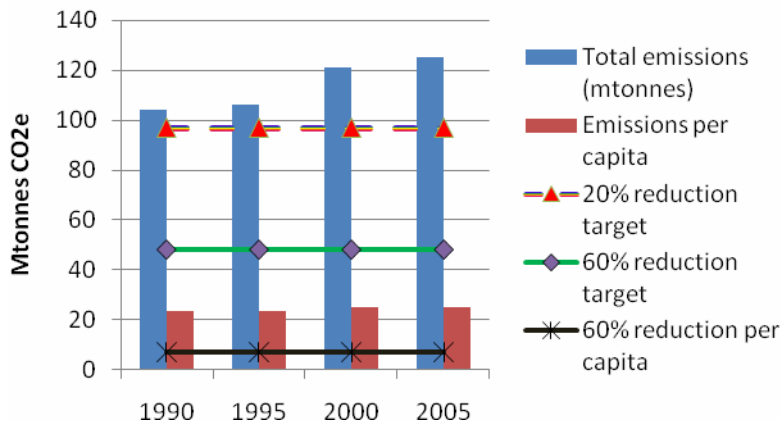
Discussion Starter by Mike Waller

Background/Context

The nature of the low carbon challenge for Victoria

In 2005 Victoria's greenhouse gas emissions totalled some 121Mt CO₂e, equivalent on a per capita basis to some 25tonnes CO₂e. Victoria's greenhouse gas target is to reduce emissions to 60% below 2000 levels by 2050. To achieve this target, a plausible trajectory would see emissions reduced by 20% in 2020. These reductions would be equivalent to total state emissions being 100Mt CO₂e in 2020 and 50Mt CO₂e in 2050. On a per capita basis the targets involve reducing per capita emissions to 17 and 7tonnes CO₂e by 2020 and 2050 respectively¹ (Figure1).

Figure 1: Victorian Greenhouse Gas Emissions & Targets



Carbon constraints - another challenge for carefully managed microeconomic reform

The size of emissions reductions indicated by the earth's safe absorptive capacity and the need to for equitable burden sharing involves major challenges for Victoria. These challenges are similar to those Victoria has surmounted in the past - e.g. reductions in import tariffs and quotas, infrastructure reforms, national competition policy.

Obstacles to delivering major structural reform typically are that:

- The costs fall on particular groups (energy intense sectors, households unable to afford rising energy costs), whereas the benefits are more diffuse (the environment, new industry sectors, future generations).
- The potential winners tend to be poorly informed about the tradeoffs (the damage avoided by more aggressive target setting).
- Decision making structures are often aligned with particular sections of the economy or community (in the case of climate change those who may have the most to lose from carbon constraints).
- The costs of reform tend to be front-loaded, whereas the benefits arise over time (higher energy costs now versus avoided damage later).

Successful major reforms achieved across Australia over the past twenty years share a number of common features:

¹ Based on ABS medium series population projections for Victoria compiled in 2005.

- A measured element of unilateral action – for example, being a relatively early mover to encourage multilateral action over time in international emissions reduction efforts.
- Hastening slowly – to allow scope for necessary adjustments (embodied in the concept of interim targets for emissions reduction).
- Acting on a broad front – to embrace sectors likely to see opportunities in emissions reductions (agriculture and forestry, waste management), as well as sectors facing competitive threats.
- ‘Oiling the wheels’ in sensitive sectors – this could take the form of assistance to workers in sectors or regions disproportionately affected by carbon constraints.

Implications for Victoria

The composition of the Victorian economy has changed significantly in response to past reforms and competitive pressures. Over the period 1990-2005, manufacturing has fallen from over 20% to 15% of GSP, with smaller falls in primary and utilities sectors. This has been offset by increases in commercial and financial services (up to nearly 40%, from just over 30%) and recreation, health and culture (Figure 2).



There has been a corresponding increase in the output per tonne of CO₂e emitted in Victoria. In 1990, for every tonne of CO₂ emitted, Victoria produced over A\$1300 (in 2005 dollars) of Gross State Product; by 2005 this had increased by 20% to some A\$1560.

Victoria is part of the global economy and will therefore be affected by the changed level and pattern of world growth generated by a carbon constrained world. Victoria’s physical, economic and social endowments present both challenges and opportunities in this world. The challenges include:

- The size, rapidly growing and quite dispersed nature of Victoria’s population, leading to high dependence on personal vehicles, road freight and air travel.
- The current energy supply system which involves a high dependence on brown coal, with low thermal efficiency and hence high emissions per MWh.
- An economic structure with significant potential exposure to carbon constraints, in particular:
 - (a) *energy intensive processing operations that in turn reflects low cost energy supplies*
 - (b) *an important manufacturing sector with a heavy dependence on larger engine cars that are vulnerable to sustained high oil prices and carbon constraints.*

The opportunities include:

- A diversified high quality natural resource base, including:
 - (a) *highly productive agricultural land; and*
 - (b) *abundant and relatively low cost/high quality supplies of coal and gas (that will likely benefit from high oil prices) and renewable energy potential.*
- A skilled and well educated workforce.
- A strong academic and research base.
- An effective and fiscally sound government.

This is an important endowment Victoria can draw on to address critical risks and exposures that may come with carbon constraints, using the broad experience and principles derived from previous successful microeconomic reforms. This includes striking a judicious balance between, on the one hand, maintaining options against the inevitable uncertainties about which technologies and business concepts will succeed in a carbon constrained world and, on the other, ensuring that sufficient resources (public and private) are directed towards solutions with high option value. In the face of these uncertainties, where and how public resources should be directed towards managing the resulting challenges and opportunities is a critical issue.

Options and possible ways forward

There is a wide range of activities offering both carbon abatement and industry development/employment opportunities for Victoria, some of which already attract public support and/or private sector investment.

- (1) **Brown coal based electricity/liquid fuel production, allied to CCS infrastructure**
This is an important potential hedge against sunk costs in existing brown coal electricity generation, and higher value added uses of brown coal resources.
- (2) **Distributed generation**
All of the demand growth in Victoria to 2020 could be met by distributed generation (primarily gas and some renewables under 30MW) with a AU\$2.4 billion (NPV) saving when a carbon price of just \$20/tonne is applied².
- (3) **Wind**
Melbourne is the centre of the Australian wind industry. This is expected to grow to 3500 MW of wind capacity by the middle of the next decade and supplies services to Australian projects, exports services (and skills). This leads to indirect impacts in the services sector (which accounts for 70% of Victoria's economy).
- (4) **Solar**
The global market for PV grew by 40% last year. The potential for a large local PV industry exists, with a strong feed-in tariff stimulating the market. A Victorian company is a world leading solar innovator – Solar Systems. Victoria will soon have world's largest PV power station – the 154 MW Solar Systems project.
- (5) **Geothermal Energy**
There are potentially large geothermal resources in Victoria both for electricity generation and direct use of heat. The 2005 Victorian Geothermal Resources Act has enabled the commercial sector to engage in exploration. Resource proving work is underway across Victoria for hot wet rock and hot dry rock applications.

² MMA modelling for Vic Gov

(6) Solar Thermal Energy

Victoria has a growth rate of solar water heating markets of over 40%. There are only small manufacturers currently in Victoria. International manufacturers are investigating Victoria as a basis for manufacturing for the region. Solar cooling is a technology that is being investigated worldwide that could have significant impact on the fast growing peak demand as well as energy issues. There is an opportunity for Victorian industry to develop products that will have significant national and regional markets.

(7) Energy efficient buildings and equipment

Energy savings in the building sector (which accounts for 60 per cent of GDP) could reduce the costs of greenhouse gas abatement across the whole economy by \$30 per tonne, or 14 per cent, by 2050. By 2050, GDP could be improved by around \$38 billion per year if building sector energy efficiency is adopted, compared to previous economy-wide estimates of the 60 % deep cuts scenario.³

(8) Carbon markets

The introduction of an emissions trading scheme will generate a large and increasingly globalised market in financial derivative and risk management products. It is not clear what role Victoria could play as a centre for product development, market making and administration of these products.

Critical questions for Victoria

- (1) What is the optimal portfolio of research, development and demonstration activities to take maximum advantage of carbon constraints and opportunities?
- (2) Where can government be most effective in driving change through leading edge standards and promoting economies of scale and scope in technology and market development (e.g. via regulation and public procurement)?
- (3) What are the entrenched barriers to new products, systems and services created by the current inheritance of infrastructure, pricing structures, taxation arrangements?
- (4) Are there special skills and professional training required to take advantage of opportunities that Victoria needs to address?
- (5) What critical assumptions/factors underpin our views on maintaining the growth of the Victorian economy? How might they interact with carbon constraints to create challenges and/or opportunities?
- (6) How should we most effectively promote structural reform in response to carbon constraints on the Victorian economy?
 - (a) *What is the default outlook for critically exposed sectors?*
 - (b) *What role should government play in supporting the necessary adjustments to a carbon constrained environment in ways that develop new markets, skills and jobs for Victorians?*

By Mike Waller, April 2008

This discussion starter has been prepared by Mike Waller to stimulate ideas and debate at the Victorian Climate Change Summit. It is not a statement or policy paper by the Victorian Government.

³ Centre for International Economics