



WEEKLY GREENHOUSE INDICATOR
SUMMER REPORT 2009/10

THE °CLIMATE GROUP

TABLE OF CONTENTS

| | |
|------------------------------------|---------|
| Introduction | page 2 |
| Overview of 2009/10 results | page 2 |
| Electricity export/import analysis | page 4 |
| Temperatures | page 5 |
| Victoria analysis | page 6 |
| New South Wales analysis | page 9 |
| Queensland analysis | page 12 |
| South Australia analysis | page 15 |
| Appendix | page 18 |
| Contact | page 19 |

INTRODUCTION

The Climate Group's Greenhouse Indicator provides accurate and real time information on greenhouse gases produced each week from energy use. It is a unique tool designed to bring greater understanding to the issue of climate change and to help track greenhouse gas emissions in selected Australian states. Each week we release greenhouse gas emissions into the atmosphere. Because they can't be seen, it is difficult to understand how much is being produced.

All countries provide a detailed annual report of their greenhouse gas emissions but such reports are normally released long after the emissions have occurred. Thus this information, while comprehensive and critical for policy planning and scientific assessment, arrives much later than when the emissions are produced. The Greenhouse Indicator puts a figure on what is happening now, and enables Australians to follow how much we are collectively emitting in our state each week.

This Summer Report covers greenhouse emissions from energy during the 2009/10 summer and also compares them to emissions over summer from the previous year. Greenhouse emissions traditionally peak in winter and summer months due to extra energy used to heat and cool our homes.

2009/10 SUMMER RESULTS

Across Victoria, New South Wales (NSW), Queensland and South Australia emissions this summer were 74.83 million tonnes, 1.24 million tonnes or 1.63 per cent lower than last summer. This decrease was not uniform across all states. The greatest decline in emissions occurred in NSW and the only State to see an increase was Queensland.

Summer emissions in NSW were 25.33 million tonnes, a fall of 1.53 million tonnes or 5.69 per cent compared with the previous summer. South Australia and Victoria saw drops of 29,000 tonnes (0.61 per cent) to 4.72 million tonnes and 12,000 tonnes (0.05 per cent) to 24.19 million tonnes respectively. This summer emissions in Queensland grew by 332,000 or 1.64 per cent to 20.59 million tonnes.

While emissions from gas-fired electricity rose by 16 per cent (405,000 tonnes), a larger fall in the industrial and domestic use of gas meant that, overall, there was a decrease in emissions from natural gas of 8.4 per cent compared with the previous summer. Emissions from coal-fired electricity fell 1.56 per cent. Electricity demand fell in all states except Queensland, giving an overall fall of 0.8 per cent across all four states.

PETROLEUM

Total emissions from petroleum products across the four states rose by 62,000 tonnes or 0.25 per cent to 24.39 million tonnes this summer. This compares with the previous summer, when emissions from petroleum had fallen by 643,000 tonnes compared to summer 2007/08.

This summer, emissions from petroleum products decreased by 1.5 per cent and 1.3 per cent in NSW and Victoria, but increased by 3 per cent in Queensland and 2.7 per cent South Australia compared with the previous summer.

LPG was the only petroleum product with decreased sales this summer compared to last, with a 5 per cent reduction overall across the four states (an emissions reduction of about 63,000 tonnes). Aviation fuel saw the most significant sales growth, up 4 per cent overall, producing an additional 141,000 tonnes of emissions. This was despite a 17 per cent decrease in South Australia.

ELECTRICITY

This summer, total emissions from electricity generation were 46.7 million tonnes compared to 47.0 million tonnes the previous summer, a fall of around 0.6 per cent across the four states. The total amount of electricity generated was just under 47 million MWh this summer, 1.6 per cent less than last summer.

Electricity demand was 0.8 per cent lower than last summer across the four states, and less electricity was exported to Tasmania.

This means that overall electricity generation was slightly more carbon intensive compared with the previous summer and was because the more carbon-efficient power stations produced less electricity.

Total emissions from coal-fired power stations were 43.81 million tonnes, 1.6 per cent less than the previous summer. However, coal generated 40.8 million MWh of electricity or 3.5 per cent less than last summer and accounted for 86.8 per cent of the scheduled electricity across the four states this summer, 1.7 per cent less than the previous year. The reason for this is that the less emissions intensive power stations, particularly in NSW, operated at a lower capacity. While the more carbon intensive stations such as Hazelwood, Redbank and Liddell were also operating at decreased capacity, this decrease was proportionally smaller than for the less carbon intensive stations, increasing their share of overall generation. This means that although overall emissions from coal fell, the carbon intensity of coal generation rose.

Total emissions from gas-fired power stations were 2.9 million tonnes, 16 per cent more than last summer. Gas generated around 4.6 million MWh of electricity, a rise of 13.5 per cent on last summer. The share of overall electricity generation from gas and

renewables increased by 15.4 per cent and 11.3 per cent respectively, making up 9.8 per cent and 3.4 per cent of the overall scheduled electricity in the states.

In Victoria, emissions from electricity generation were 16.4 million tonnes this summer, a rise of 1.1 per cent (180,000 tonnes). Generation from brown coal increased by 0.3 per cent (299,000 tonnes), while the amount of electricity produced from gas fell by 36.8 per cent (116,000 tonnes). Electricity demand fell by 1.9 per cent compared with last summer. The fall in demand combined with a smaller decline in generation meant that Victoria's net export of electricity to other states was 7.9 per cent higher than last summer and represented just less than 7 per cent of total generation.

In NSW, 15.5 million tonnes of emissions were produced from electricity generation, a fall of 7 per cent on last summer. Electricity generation from black coal fell by 9.4 per cent (1.35 million tonnes) with gas-fired generation achieving a 36.8 per cent growth - the highest single-sector growth in any state (170,000 tonnes more emissions). This was due to the commissioning of two new gas plants during 2009, namely Uranquinty and Tallawarra. Electricity demand fell by 0.9 per cent compared with last summer, while electricity imports from other states grew by 199 per cent compared with the previous summer and represented 6.2 per cent of total electricity demand.

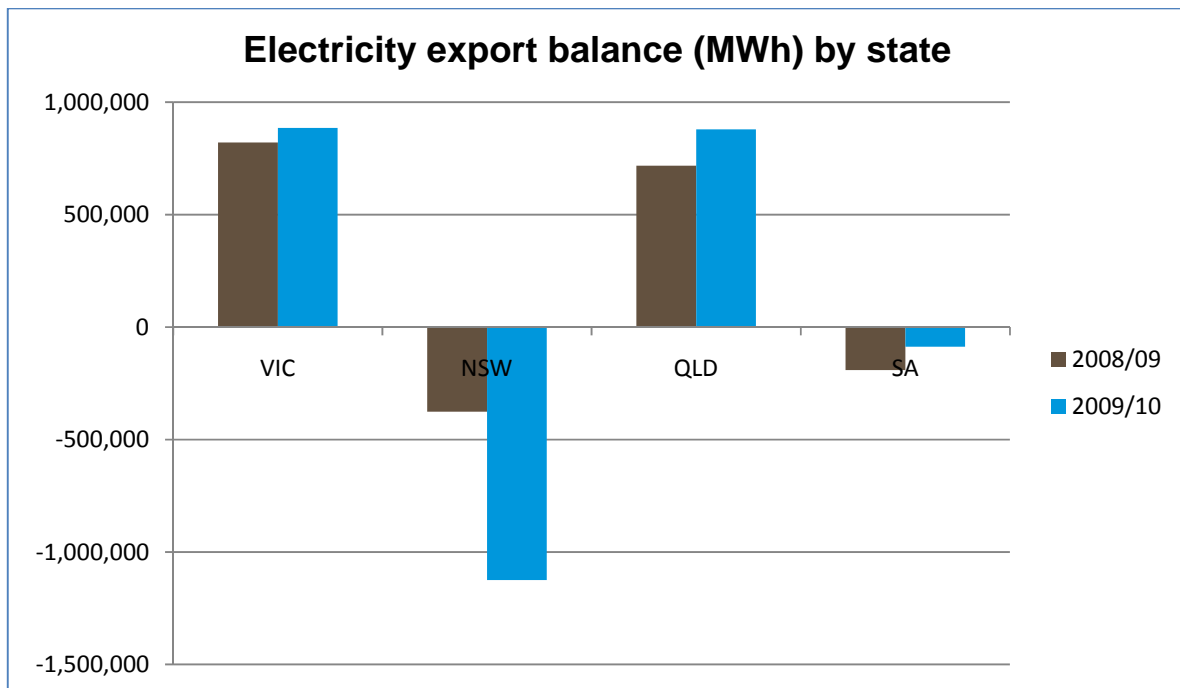
In Queensland, 12.5 million tonnes of emissions were produced from electricity generation, a rise of 4.8 per cent on last summer. Generation from black coal fell by 0.5 per cent (152,000 tonnes) while generation from gas increased by 33 per cent (418,000 tonnes). Electricity demand grew by 0.8 per cent this summer compared with last summer. The net export of electricity to other states from Queensland was 22 per cent greater than the amount exported last summer and represented 6.2 per cent of total electricity generation.

In South Australia, 2.39 million tonnes of emissions were produced from electricity generation, an increase of 6 per cent on last summer. Generation from coal rose by 9.3 per cent (205,000 tonnes) while 7.6 per cent less electricity produced was from gas (resulting in 67,000 tonnes less emissions). Electricity demand decreased by 2.5 per cent compared with last summer and the state imported 55 per cent more electricity than the previous summer, representing 2.7 per cent of its electricity demand.

GAS (DOMESTIC AND INDUSTRIAL USE)

In contrast to the rise in gas use for electricity generation this summer, the level of gas used for domestic purposes (heating and cooking) and for industrial purposes fell across all states by 21.4 per cent.

This has resulted in an emissions reduction of just over a million tonnes.



TEMPERATURES

Australia experienced another warmer-than-average summer in 2009/10. Following a very warm winter and spring, this summer concluded the warmest nine months on record. Average maximum temperatures

over the continent were 0.55°C above average and minimums 0.76°C above average. These are 0.58°C and 0.30°C higher than last summer's national average maximum and minimum temperatures respectively.

| Temperature Summary Summer 2009/10 and 2008/09 | | | | | |
|--|-----------------------------|-----------------------------|----------------------|-----------------------------|-----------------------------|
| Maximum Temperatures | | | Minimum Temperatures | | |
| Area | Summer 2009/10 Anomaly (°C) | Summer 2008/09 Anomaly (°C) | Area | Summer 2009/10 Anomaly (°C) | Summer 2008/09 Anomaly (°C) |
| National | ↑0.55 | ↓0.03 | National | ↑0.76 | ↑0.46 |
| VIC | ↑1.54 | ↑0.72 | VIC | ↑1.18 | ↑0.13 |
| NSW | ↑0.94 | ↑1.06 | NSW | ↑1.15 | ↑0.68 |
| QLD | ↓0.57 | ↓0.71 | QLD | ↑0.3 | ↑0.31 |
| SA | ↑0.75 | ↑0.95 | SA | ↑1.05 | ↑1.11 |

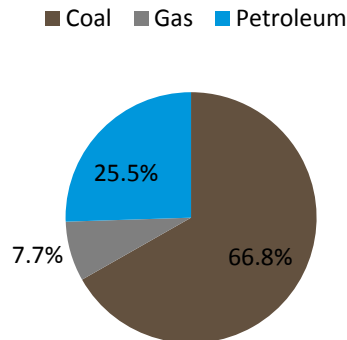
Source: Bureau of Meteorology

In summer, high temperatures have a strong correlation to high electricity use, due to the increased need for cooling. As a result, emissions from energy often increase during periods of high temperatures. Many weeks with above average temperatures also recorded high emissions.

Victoria

Summer 2009/10: 24.188 million tonnes CO_{2e} down 0.012 million tonnes, or 0.05 per cent on last summer

Coal-fired electricity: 16.151 million; down 1.9 per cent on 2008/09
Natural gas: 1.869 million; down 11.0 per cent on 2008/09
Petroleum: 6.169 million; down 1.28 per cent on 2008/09



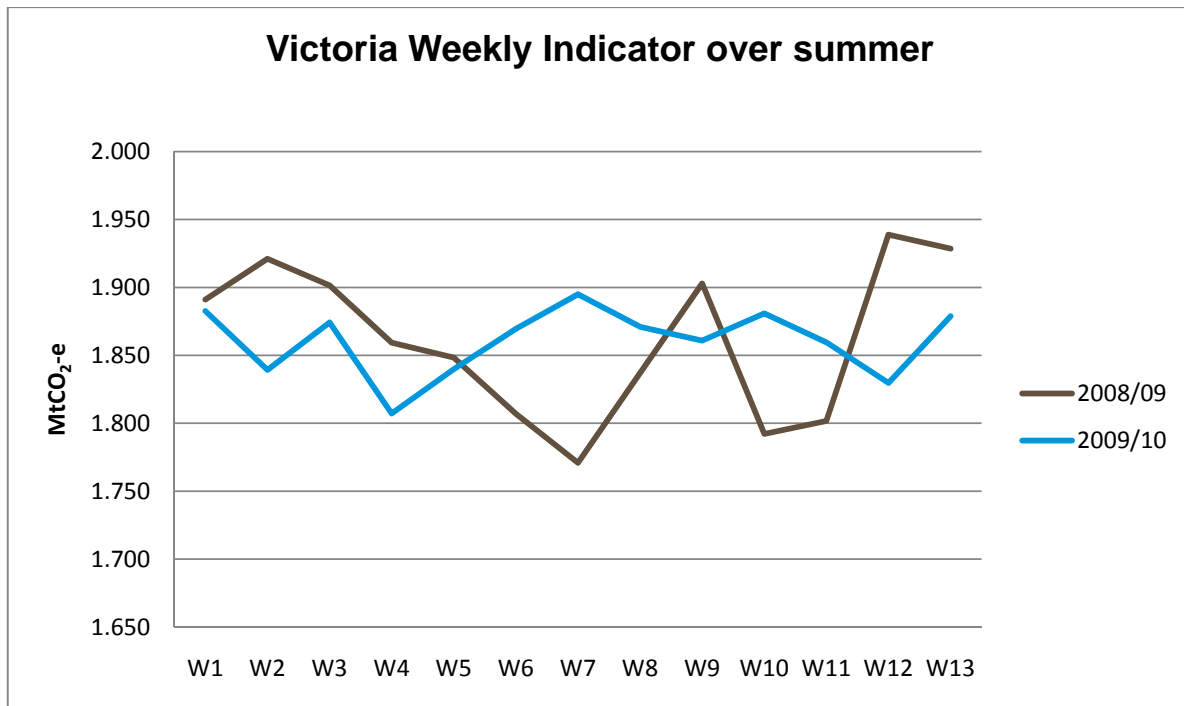
The Greenhouse Indicator accounts for just about all of Victoria's emissions from energy and about 85 per cent of the state's total greenhouse gas emissions. Remaining emissions come from agriculture, waste and industrial processes. Forestry also acts as a sink for about 2 per cent of the total emissions. Greenhouse gas emissions in Victoria not included by the Indicator for this period are estimated to be approximately 5 million tonnes.

The Weekly Greenhouse Indicator in Victoria ranged between 1.8 and 1.9 million tonnes this summer – a smaller range than last summer. The Weekly Indicator recorded its highest figure in the third week of January with 1.895 million tonnes, 2.3 per cent lower than the highest figure in the previous summer (1.939 million tonnes). This week also marked the highest emissions from coal for the season. The lowest Weekly Indicator (1.807 million tonnes) was recorded during the last week of

December and coincided with the lowest level of emissions from gas over the summer. This was 2.0 per cent higher than the lowest week in the 2008/09 summer.

Victorians consumed 11.79 million MWh of electricity equivalent to 93 per cent of the electricity generated within the state, with the remaining 7 per cent exported for use by other states.

Victoria Weekly Indicator over summer

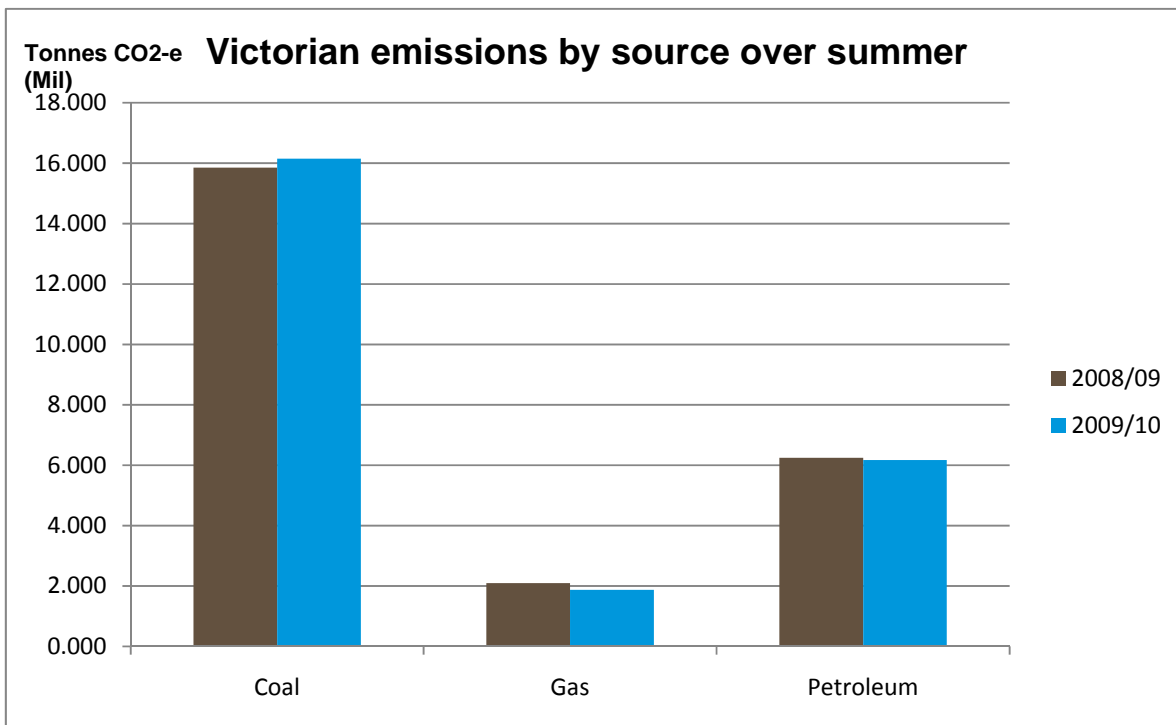


Electricity from coal accounted for 67 per cent of emissions in Victoria and 97 per cent of scheduled electricity generated compared with 95 per cent last summer. The average weekly emissions from coal-fired power stations were 1.242 million tonnes, up 1.9 per cent on last summer or 299,000 tonnes extra emissions in total. Emissions from coal peaked at 1.280 million tonnes during the third week of January, with Hazelwood Power Station in particular operating at a higher capacity. This was 2.3 per cent lower than the highest level during the previous summer. The lowest weekly level recorded occurred in the second last week of summer and was 1.198 million tonnes, 7 per cent higher than the lowest level during the 2008/09 summer.

The use of natural gas caused the lowest level of emissions of the three energy sources. Natural gas is

used in industrial and commercial applications as well as for domestic use (largely heating) and to fuel electricity generation. This summer, the average weekly emissions from gas use was 144,000 tonnes, down 11 per cent on last summer. This was due to a fall in both the amount electricity generated from gas of 37 per cent (or 116,000 tonnes emissions) as well as a 6.5 per cent decrease in gas being used for domestic and industrial purposes (or 114,000 tonnes emissions).

Petroleum emissions this summer were on average 475,000 tonnes per week or 1.3 per cent less than last summer. These emissions include sales of LPG, automotive transport fuels, aviation fuel, industrial diesel and fuel oil. Sales of aviation fuel, fuel oil and LPG fell while diesel and petrol rose.

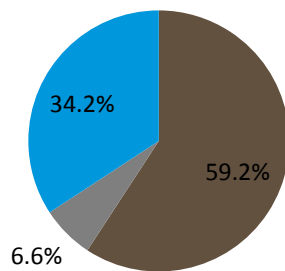


New South Wales

Summer 2009/10: 25.334 million tonnes CO₂e down 1.529 million tonnes, or 5.69 per cent on last summer

| | |
|-------------------------|--|
| Coal-fired electricity: | 15.001 million; down 8.2 per cent on 2008/09 |
| Natural Gas: | 1.666 million; down 3.17 per cent on 2008/09 |
| Petroleum: | 8.667 million; down 1.45 per cent on 2008/09 |

■ Coal ■ Gas ■ Petroleum

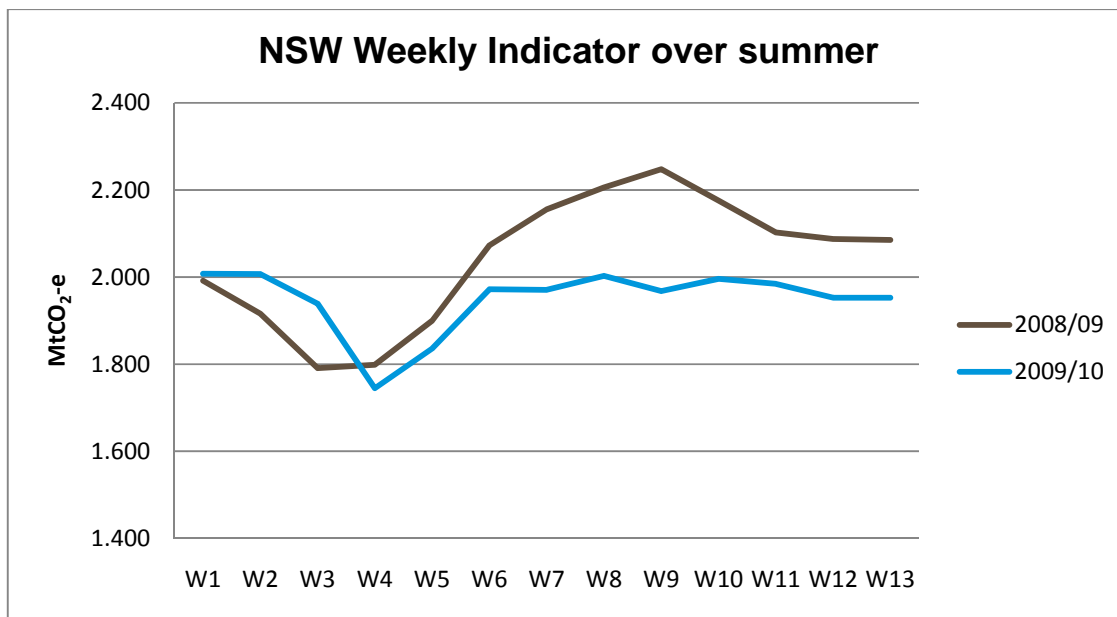


The Greenhouse Indicator accounts for more than 90 per cent of NSW's emissions from energy and 65 per cent of the State's total greenhouse gas emissions. Remaining emissions come from agriculture, land use, waste, industrial processes and fugitive emissions from coal mining. Greenhouse gas emissions in NSW not included by the Indicator are estimated to be approximately 14 million tonnes for the period covered.

The Weekly Greenhouse Indicator in NSW ranged between 1.7 and 2 million tonnes this summer – a much smaller range than last summer. Total emissions for NSW this summer fell by 5.7 per cent compared with the previous summer, the largest decline in emissions of any single state. This was largely due to a decline in emissions from coal. The highest Weekly Indicator recorded was 2.01 million tonnes in the first week of the season, and was 3.8 per cent lower than the highest Indicator during the previous summer. This week produced the highest levels of emissions from both gas and petroleum. The lowest Weekly Indicator recorded was 1.745 million

tonnes, 2.6 per cent lower than the lowest week for the previous summer. This was in the last week of December - the week of lowest emissions from coal over the summer.

NSW experienced a 0.9 per cent reduction in demand for electricity compared with the previous summer, with a total of 18.2 million MWh used. The amount of electricity being imported into the state rose by 199 per cent with a total of 1.125 million MWh, or 6.2 per cent of total electricity demand being imported from other states this summer.

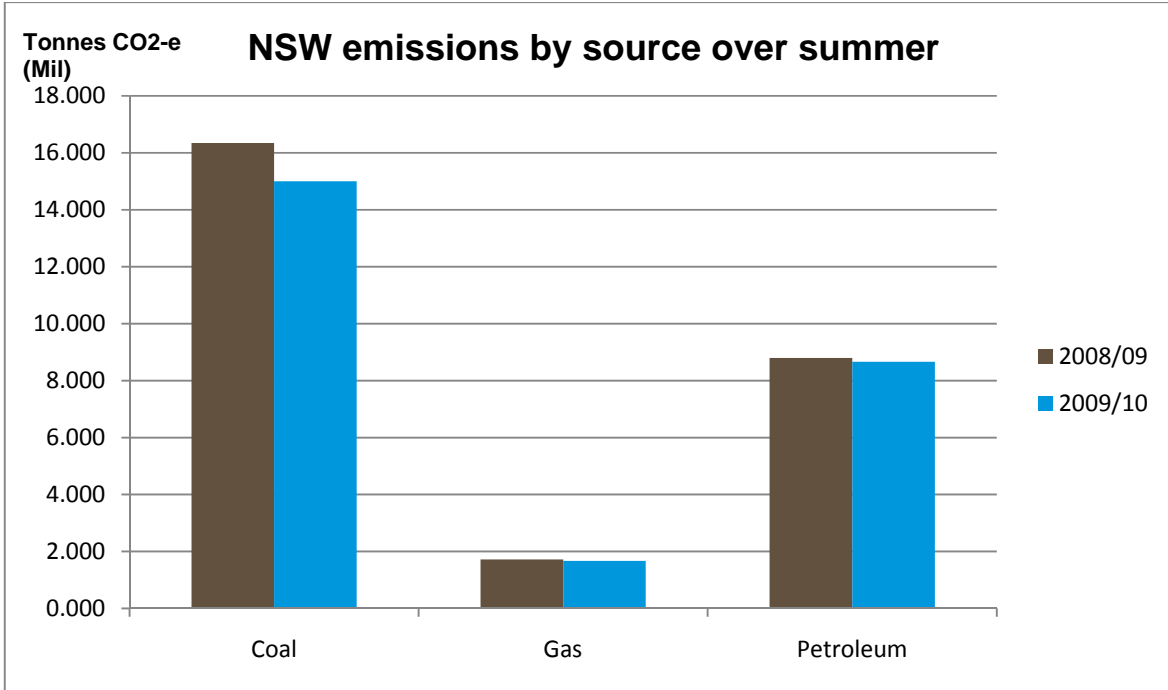


Electricity from coal accounts for the most emissions from energy in NSW and 88 per cent of scheduled electricity generated, 4.2 per cent less than last summer. The average weekly emissions from coal were 1.158 million tonnes, down 8.2 per cent on the previous summer. This was the result of a 9.4 per cent fall in the amount of electricity being generated from coal with Eraring and Wallerawang Power Stations operating at reduced capacity. Peak emissions from coal occurred during mid February, with 1.22 million tonnes emitted that week, 13.8 per cent lower than the peak for the previous summer. The peak resulted from a rise in demand coinciding with less electricity available for import from other states. The last week in December recorded the lowest level of emissions from coal at 0.972 million tonnes; 6.8 per cent lower than the lowest level recorded in the 2008/09 summer.

The use of natural gas caused the lowest level of emissions of the three energy sources, contributing

6.6 per cent of the state's emissions this summer. Gas contributed on average 128,000 tonnes of emissions every week. This represents a 3.2 per cent decrease from last summer. This decrease was despite an increase in gas-fired electricity generation of 84 per cent (or 171,000 tonnes extra emissions) compared with last summer. This means that while the amount of electricity generated from gas increased, other uses of gas (mainly industrial and domestic) fell substantially, causing 225,000 tonnes less emissions. Overall, gas remains a very small contributor to electricity generation and overall emissions for the state.

Petroleum emissions this summer were on average 667,000 tonnes per week – this was 1.4 per cent lower than last summer. Petroleum emissions include sales of LPG, automotive fuels, aviation fuel, industrial diesel and fuel oil. Sales grew from all sources other than diesel, which fell by 6 per cent.

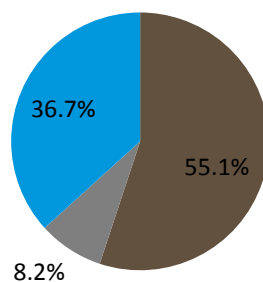


Queensland

Summer 2009/10: 20.587 million tonnes CO₂e, up 0.332 million tonnes or 1.64 per cent on last summer

Coal-fired electricity: 11.339 million; up 1.4 per cent on 2008/09
Natural gas: 1.688 million; down 2.1 per cent on 2008/09
Petroleum: 7.560 million; up 3.0 per cent on 2008/09

■ Coal ■ Gas ■ Petroleum



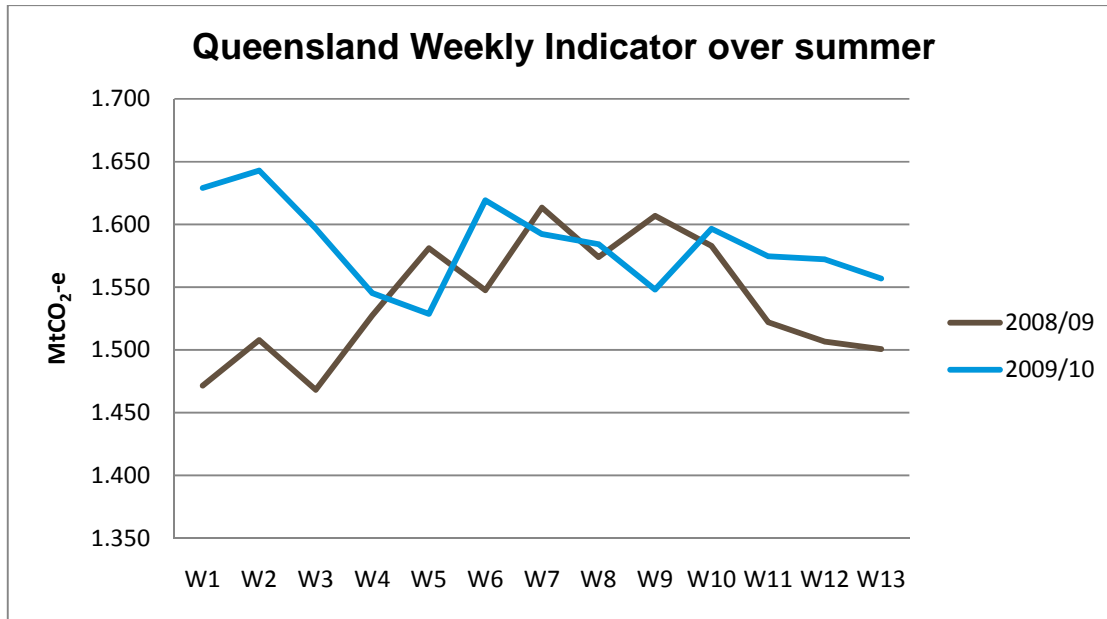
The Weekly Indicator accounts for about 80 per cent of Queensland's total energy emissions and 45 per cent of the state's total greenhouse gas emissions. Remaining emissions come from agriculture, land use, waste, industrial processes, electricity generated on-site by industry and fugitive emissions from coal mining. Greenhouse gas emissions in Queensland not included by the Indicator are estimated to be approximately 25 million tonnes for the period.

The Weekly Greenhouse Indicator in Queensland ranged between 1.5 and 1.7 million tonnes this summer. Queensland's total emissions grew compared with the previous summer due to a rise in emissions from coal and petroleum products.

The highest Weekly Indicator recorded was 1.643 million tonnes in the second week of the season – 2.2 per cent greater than the highest Weekly Indicator during the previous summer. This was due to emissions from coal also peaking in this week. The lowest Weekly Indicator (1.529 million tonnes) was in the first week of January, and was 4.1 per cent higher than the lowest Weekly Indicator in the previous

summer. This week also corresponded to the lowest weekly emissions from coal-fired generation.

Queensland experienced a 0.8 per cent rise in demand for electricity and a 2.0 per cent increase in generation compared with the previous summer. This resulted in a greater surplus of electricity, with 22 per cent more electricity being exported to other states compared with the previous summer. Electricity exports accounted for 6.2 per cent of total electricity generation in the state.

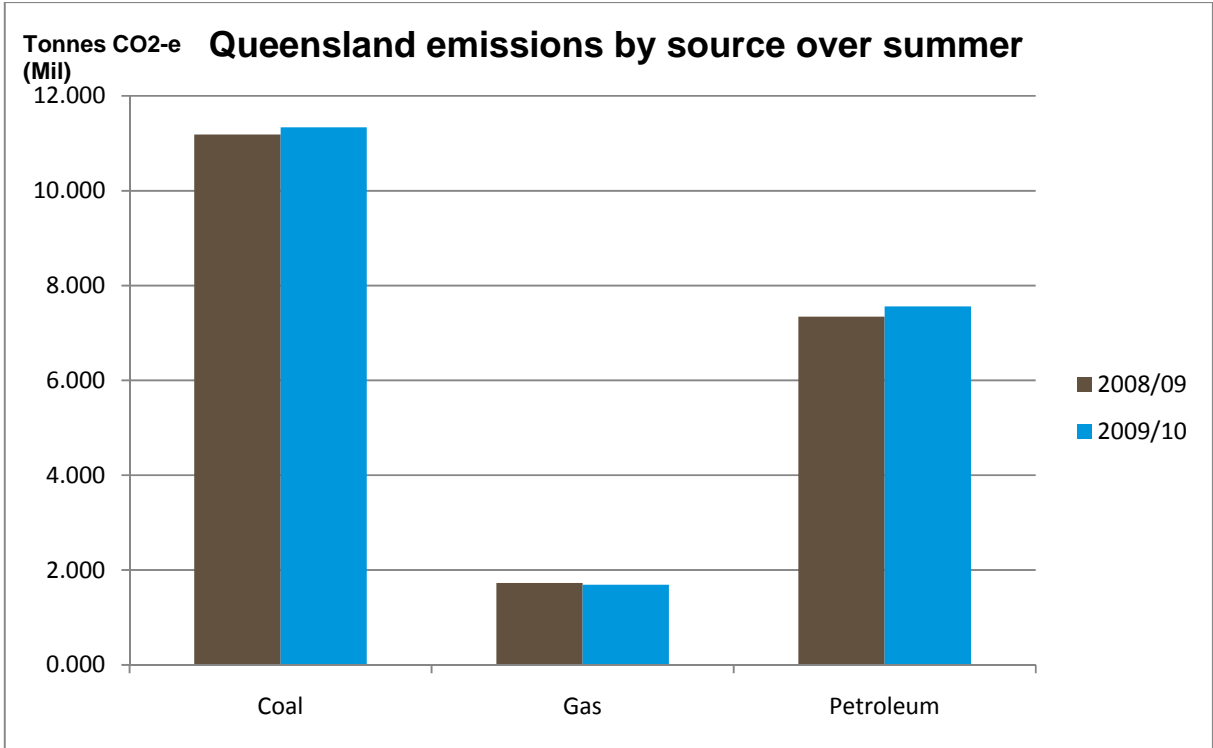


Electricity from coal accounted for the most emissions in Queensland and 87 per cent of scheduled electricity generated this summer (2.4 per cent less than the previous summer). The average weekly emissions from coal-fired electricity were 872,000 tonnes, up 1.4 per cent on 2008/09. Peak emissions from coal occurred during early December with 907,000 tonnes emitted that week, when a number of coal-fired generation units at Gladstone and Tarong Power Stations were operating at higher capacity. This peak was 1.2 per cent lower than peak for the previous summer. The lowest level of emissions for coal was in the last week of December and was 0.1 per cent greater than the lowest level last summer.

The use of natural gas caused the lowest level of emissions at 130,000 tonnes on average per week,

down by 2.1 per cent (or 37,000 tonnes in total) on the previous summer. This decrease was despite an increase in gas-fired electricity generation of 33 per cent (418,000 tonnes) compared with last summer. This means that while the amount of electricity generated from gas increased, other uses of gas (mainly industrial and domestic) fell substantially causing 455,000 tonnes less emissions over the summer.

Petroleum emissions this summer averaged 582,000 tonnes per week, 3 per cent higher than last summer. Petroleum includes sales of LPG, automotive fuels, aviation fuel, industrial diesel and fuel oil. Fuel sales from LPG decreased by 10 per cent, while sales from other fuel sources generally increased. The net effect was a 3 per cent increase in sales across all petroleum fuel types.

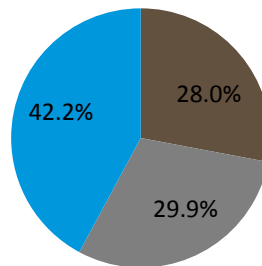


South Australia

Summer 2009/10: 4.717 million tonnes CO₂e, down 0.029 million tonnes or 0.61 per cent on 2008/09

| | |
|-------------------------|--|
| Coal-fired electricity: | 1.320 million; up 18.4 per cent on 2008/09 |
| Natural gas: | 1.409 million; down 16.9 per cent on 2008/09 |
| Petroleum: | 1.988 million; up 2.7 per cent on 2008/09 |

■ Coal ■ Gas ■ Petroleum

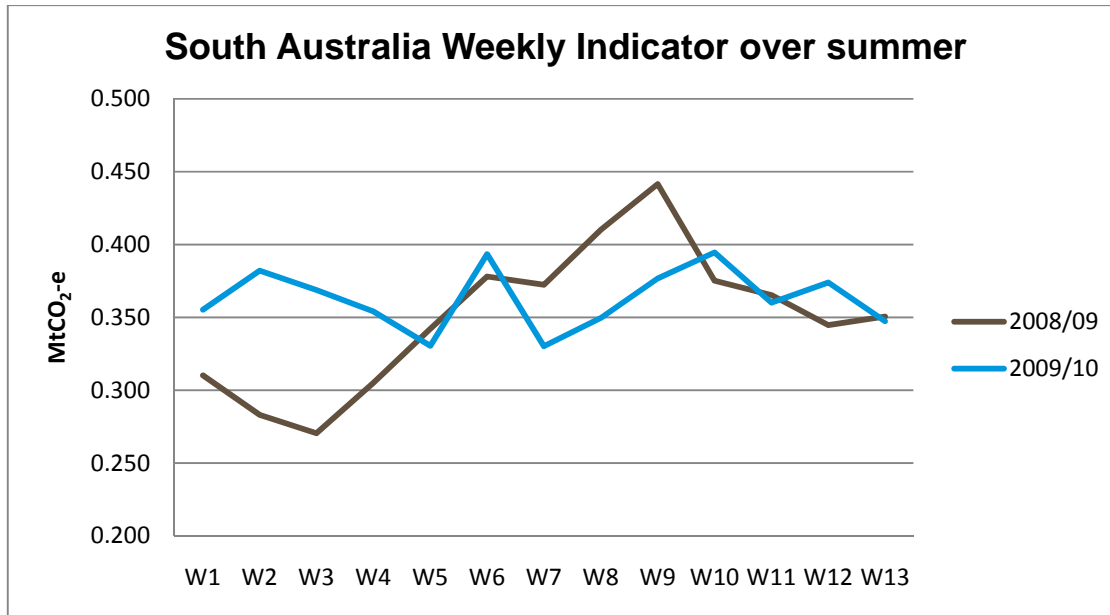


The Weekly Indicator accounts for around 90 per cent of South Australia's emissions from energy and about 65 per cent of the State's total greenhouse gas emissions. Remaining emissions come from agriculture, waste and industrial processes. Greenhouse gas emissions in South Australia not included by the Indicator are estimated to be approximately 2.5 million tonnes for the period.

The Weekly Greenhouse Indicator in South Australia ranged between 330,000 and 395,000 tonnes this summer – a much smaller range than last summer. Total emissions fell by 0.6 per cent (or 29,000 tonnes) compared with the previous summer, due mainly to a decrease in emissions from gas. The highest Weekly Indicator recorded was 395,000 tonnes in the first week of February, and was 10.6 per cent less than the highest Weekly Indicator during the previous summer. This high was due to high emissions from coal, combined with peak petroleum emissions for the season. The lowest Weekly

Indicator, 330,000 tonnes, was in the middle week of summer and was 22.1 per cent higher than the lowest Indicator in the previous summer.

Demand for electricity was 2.5 per cent lower than the previous summer. Along with the increase in electricity generation of 23,000 MWh, this meant that South Australia imported 55 per cent less electricity or 104,000 fewer MWh than the previous summer. Electricity imports accounted for 2.7 per cent of overall demand in the state.



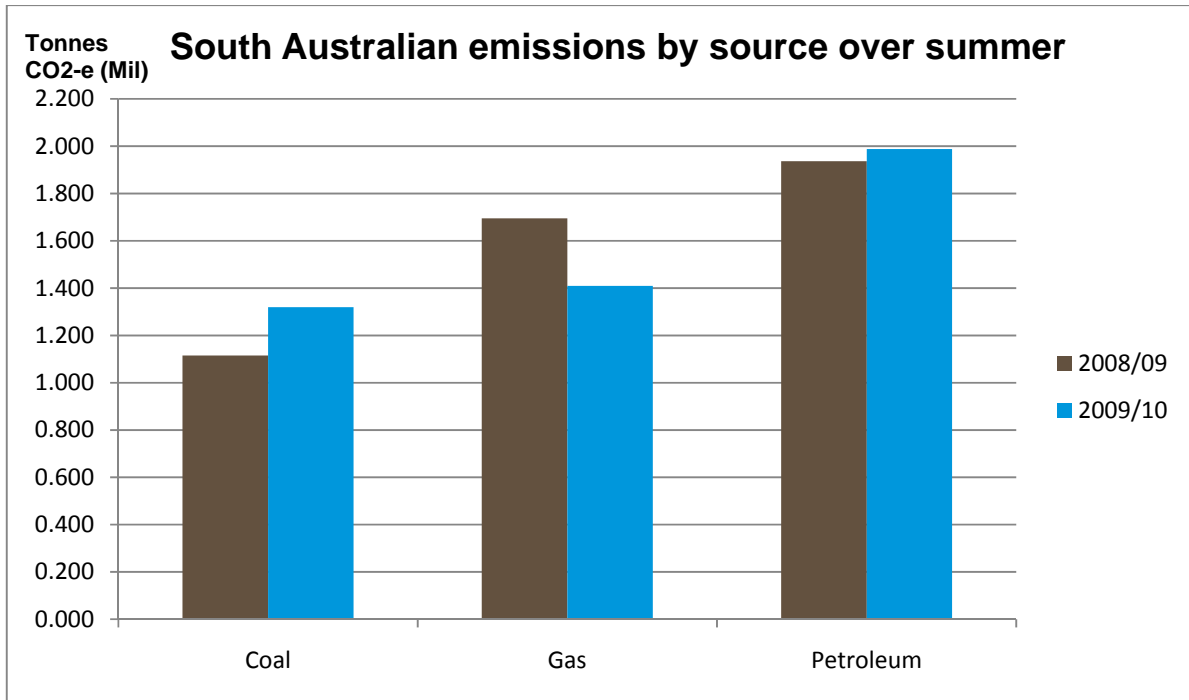
Electricity from coal accounted for the lowest contribution to emissions in South Australia in contrast to other states. Coal accounted for 28 per cent of emissions (or 1.32 million tonnes), and 39 per cent of scheduled electricity generated this summer (up 9.3 per cent on last summer). The average weekly emissions from coal were 102,000 tonnes, up 18.4 per cent on last summer. This is due to an increase in electricity generated by Northern Power Station. Peak emissions from coal occurred during the second week of summer, with 109,000 tonnes emitted that week, with both the state’s coal plants, Northern Power Station and Playford B, operating at increased capacity. This peak was 7.3 per cent greater than last summer. The lowest weekly emissions for coal occurred in the second last week of the season, and were 56 per cent per cent higher than the lowest level last summer.

The use of natural gas contributed 108,000 tonnes on average per week to South Australia’s emissions – down by 17 per cent on last summer (286,000 tonnes less emissions). One reason for this was a 7.6 per

cent decline in gas-fired electricity generation (67,000 tonnes less emissions) – the principle use of gas in the state. Gas-fired generation in South Australia accounted for 51 per cent of scheduled electricity generation. However, the principle reason for the fall was a decline in gas used for domestic and industrial purposes compared to last summer, resulting in 219,000 tonnes less emissions for the season.

Peak emissions occurred during mid January, with 134,000 tonnes emitted that week. This peak was 28.7 per cent lower than the previous summer. The lowest weekly emissions were in the first week of January and were 38.1 per cent higher than the lowest level last summer.

Petroleum emissions accounted for the highest proportion of South Australia’s emissions, with a 42.2 per cent share. This summer, petroleum emissions averaged 153,000 tonnes per week, 2.1per cent less than last summer. This is predominantly due to a large decrease (17 per cent) in sales of aviation fuel.



Appendix Greenhouse Indicator

2009-2010 Summer Summary

Greenhouse Emissions (mil tonnes CO2 equiv)

| | VIC | NSW | QLD | SA | Combined |
|----------------|---------------|---------------|---------------|--------------|---------------|
| 2008/09 | | | | | |
| Coal | 15.852 | 16.348 | 11.187 | 1.115 | 44.502 |
| Gas | 2.100 | 1.720 | 1.725 | 1.695 | 7.240 |
| Petroleum | 6.249 | 8.795 | 7.343 | 1.937 | 24.323 |
| TOTAL | 24.200 | 26.863 | 20.255 | 4.746 | 76.065 |

| 2009/10 | Change | | Change | | Change | | Change | | Change | |
|----------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|---------------|---------------|---------------|
| Coal | 16.151 | 1.89% | 15.001 | -8.24% | 11.339 | 1.35% | 1.320 | 18.38% | 43.810 | -1.56% |
| Gas | 1.869 | -11.00% | 1.666 | -3.17% | 1.688 | -2.12% | 1.409 | -16.86% | 6.632 | -8.40% |
| Petroleum | 6.169 | -1.28% | 8.667 | -1.45% | 7.560 | 2.95% | 1.988 | 2.68% | 24.385 | 0.25% |
| TOTAL | 24.188 | -0.05% | 25.334 | -5.69% | 20.587 | 1.64% | 4.717 | -0.61% | 74.827 | -1.63% |

| | | | | | | | | | |
|-----------------------|--------|--|----------|--|--------|--|--------|--|----------|
| Change from 2008-9 | -0.012 | | -1.529 | | 0.332 | | -0.029 | | -1.238 |
| Change ('000s tonnes) | -11.99 | | -1529.24 | | 331.77 | | -28.84 | | -1238.29 |

| Market share | | | | | | | | | | |
|---------------------|---------------|--|---------------|--|---------------|--|---------------|--|---------------|--|
| Coal | 66.8% | | 59.2% | | 55.1% | | 27.98% | | 58.5% | |
| Gas | 7.7% | | 6.6% | | 8.2% | | 29.87% | | 8.9% | |
| Petroleum | 25.5% | | 34.2% | | 36.7% | | 42.15% | | 32.6% | |
| TOTAL | 100.0% | | 100.0% | | 100.0% | | 100.0% | | 100.0% | |

The Climate Group would like to acknowledge Green Energy Markets for its assistance in preparing this report.

For more information visit www.theclimategroup.org/indicator

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