GGAS

FACT SHEET
THE NSW POOL COEFFICIENT

The NSW Pool Coefficient is an indicator of the average emissions intensity of electricity sourced from the electricity grid in NSW. It represents the emissions of greenhouse gases (in tonnes of carbon dioxide equivalent) per MWh of electricity supplied from the 'pool' of major power stations serving the NSW electricity grid.

The role of the Pool Coefficient in the NSW Greenhouse Gas Reduction Scheme

The NSW Pool Coefficient is a critical value in the operation of NSW Greenhouse Gas Reduction Scheme (the Scheme).

The Scheme uses the NSW Pool Coefficient when calculating benchmark participants' responsibilities or 'attributable emissions' under the Scheme and thus it is used for determining the number of New South Wales Greenhouse Abatement Certificates (NGACs) that a participant will need to surrender to meet its individual benchmark.

The emissions of greenhouse gases for which benchmark participants are responsible are calculated by multiplying the NSW Pool Coefficient by the benchmark participant's 'electricity purchases'.

The NSW Pool Coefficient is also used in the calculation of the number of NGACs that an accredited abatement certificate provider can create.

In November each year, the NSW Pool Coefficient and other Scheme key factors are announced by IPART for the next calendar year.

Calculating the Pool Coefficient

The NSW Pool Coefficients for 2003 and 2004 were set out in the Greenhouse Gas Benchmark Rule (Compliance) No 1 (the 'Compliance Rule'). For subsequent years, the NSW Pool Coefficient is calculated according to the method set out in Clause 9.1 of the Compliance Rule and the method is outlined in this fact sheet.

The NSW Pool Coefficient for a year is the simple average of the five 'Annual Pool Values' from previous years, lagged by two years. For example, the NSW Pool Coefficient for 2010 is the average of the Annual Pool Values for the years 2004 to 2008.

The averaging smooths the impact of any one-off highs or lows in the Annual Pool Value in a particular year and thus makes the NSW Pool Coefficient more stable and predictable. The two-year time lag reflects the practicalities of obtaining data, calculating and publishing the NSW Pool Coefficient in advance of the year to which it applies.

An adjustment is also made to the calculation of the NSW Pool Coefficient to remove reductions in emissions for which abatement certificates have been created. This is necessary to avoid double-counting the abatement benefit.

In broad terms, the Annual Pool Value is the average rate of emissions of greenhouse gases per unit of electricity sent out to the NSW grid in that calendar year by a defined set of generators (Category B Generators – see table on next page) and via the interconnectors linking NSW with Queensland, Victoria and South Australia.

Category B Generators (Schedule B of the Generation Rule)

Vales Point	Keepit	Tumut 1
Mt Piper	Shoalhaven	Tumut 2
Wallerawang	Warragamba	Tumut 3
Munmorah	Broken Hill GT	Blowering
Eraring	Bayswater	Murray 1
Brown Mountain	Liddell	Murray 2
Burrinjuck	Guthega	Redbank
Hume		

The Annual Pool Value is calculated using data supplied to IPART by the operators of the Category B Generating Systems and by the National Electricity Market Management Company (NEMMCO).

The following data is provided to IPART by either the power station operators, NEMMCO or the Scheme Administrator:

- the quantity of fossil and renewable fuels used in the power stations;
- the carbon dioxide, methane and nitrous oxide emissions from the combustion of fossil fuels and renewable fuels in the power stations;
- fugitive carbon dioxide and methane emissions associated with the production of the fossil fuels used;
- emissions avoided through the use of waste coal mine gas or sewage gas, if any;
- the quantity of electricity sent out from the power stations; and
- the quantity of NGACs created as a result of measures taken to increase the efficiency of the power stations or otherwise reduce their greenhouse gas intensity.

As IPART receives this data in confidence, only aggregate emissions figures for NSW in a given year may be released.

Annual Pool Values and Pool Coefficients

The following Annual Pool Values, total NSW emissions and total NSW Sent Out generation figures have been used to date by IPART in calculating the NSW Pool Coefficient.

Year	Total NSW emissions (tCO_2-e)	Total NSW Sent Out Generation (MWh)	Annual Pool Value[(a)] (tCO_2-e/MWh)	Pool Co-efficient (tCO_2-e/MWh)
1999	N/A[(b)]	N/A[(b)]	0.901	N/A[(b)]
2000	N/A[(b)]	N/A[(b)]	0.889	N/A [(b)]
2001	N/A[(b)]	N/A[(b)]	0.905	N/A [(b)]
2002	N/A[(b)]	N/A[(b)]	0.921	N/A [(b)]
2003	63,431,793[(d)]	66,800,866	0.950	0.897[(c)]
2004	65,979,036[(d)]	67,276,401	0.981	0.906[(c)]
2005	65,896,606	69,341,455	0.950	0.913
2006	70,010,515	72,222,646	0.969	0.929
2007	69,810,669	71,015,242	0.983	0.941
2008	71,394,801	72,646,917	0.983	0.954
2009	68,585,696	69,450,575	0.988	0.967
2010	TBA	TBA	TBA	0.973
2011	TBA	TBA	TBA	0.975

(a) Pool values for years preceding 2003 were calculated using a different methodology, but the values have been retained for averaging purposes in Compliance Rule, Clause 9.1, Method 1.
(b) The NSW Greenhouse Gas Reduction Scheme commenced in 2003.
(c) The Pool Coefficient for 2003 and 2004 was set in the Compliance Rule (Clause 9.1.1 and 9.1.2) and was not determined by IPART.
(d) Includes value of NGACs created through power station efficiency improvements and fuel mix changes, as well as physical emissions.

Variations in the Annual Pool Value

The coal-fired power stations comprise the largest elements of the Annual Pool Value. The greenhouse intensity of each power station varies from year to year depending on the quality of coal burned, the mix of other fuels and the overall operating efficiency.

The Annual Pool Value will also vary according to the contribution of each power station to total electricity sent out and the extent of electricity imports or exports between NSW and each of its neighbouring states.

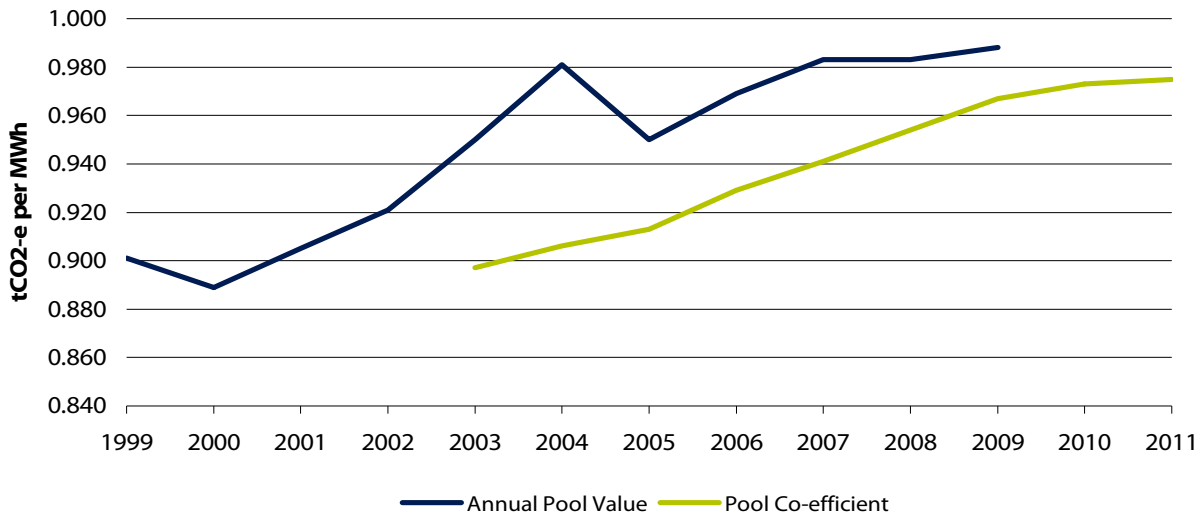
The variability of electricity output from hydro-electric Category B generators (the largest of which are part of the Snowy Hydro scheme) increases the volatility of the Annual Pool Value. Hydro-electric generation is considered to have no greenhouse emissions for the purposes of calculating the Pool Value, so the greater the hydro share of electricity sent out, the lower the Pool Value, all else being equal.

The 2011 NSW Pool Coefficient increased by a modest 0.2% to 0.975 tCO_2-e /MWh. This is due to the rolling average mechanism; the 2009 value added to the series (0.988) is higher than the 2004 value that was removed from the series (0.981).

The upward trend in the NSW Pool Coefficient will lead to increased demand for abatement certificates.

Figure 1 below shows the actual NSW Pool Values and Pool Coefficients since the Scheme began.

Figure 1 - Historical NSW Pool Value and Pool Coefficient 1999-2010



Projections of the NSW Pool Coefficient to 2012

IPART has made a forecast of the Pool Coefficient until 2012. The forecasts of the NSW Pool Coefficient in 2011-12 are estimates and IPART makes no guarantee of their accuracy. Readers should rely on their own judgement about future trends in the pool coefficient.

The 2011-12 projections are based on the assumption that the existing Category B generators continue to supply a similar level of Net Sent Out Generation. Under the current Generation Rule, if a major new baseload power station is built (whether in NSW or elsewhere), it would be a Category D generator, and would only impact on the Pool Value if it reduced the energy sent out from Category B thermal generators. The actual effect will depend on the timing and size of the new power station constructed.

The projections are most sensitive to assumptions about Snowy Hydro output[1] and the source of imports[2], but less sensitive to assumptions about rates of growth in energy sent

1 The recent reduction in Snowy Hydro electricity output due to the drought will have an upward pressure on the NSW Pool Coefficient.

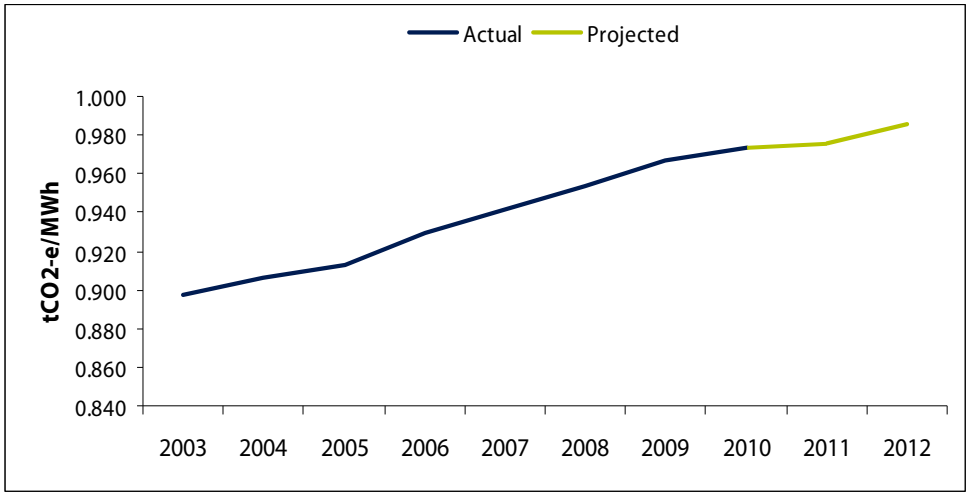
2 Electricity generated in other states generally has an average emissions intensity that is higher than NSW.

out and to assumptions about the trend in Category B power station intensity.

However, there will most likely be pressure to revise the basis for calculating the NSW Pool Coefficient once the energy contribution from current Category B power stations to total energy sent out falls significantly. This is likely to occur after 2012.

Figure 2 below illustrates the forecast values for the Pool Coefficient until 2012.

Figure 2 Forecast of the NSW Pool Coefficient until 2012



The projected Pool Coefficient forecast indicates it will increase marginally in 2011, before exceeding 0.98tCO2-e/MWh in 2012. The projections are based on the following key assumptions:

- Snowy Hydro output remains below the long term average;
- Future increases in inter-State imports of electricity, specifically a higher level of net imports from Victoria. Victoria has significantly higher greenhouse gas intensity than NSW which would in turn put upward pressure on the Pool Value.

Legal context for this fact sheet

The Compliance Regulator has prepared this fact sheet as a general summary of relevant parts of:

The Act: Electricity Supply Act 1995

The Regulation: Electricity Supply (General) Regulation 2001

The Rules: Greenhouse Gas Benchmark Rules issued through the Department of Energy, Utilities and Sustainability. There are currently five Rules. The Greenhouse Gas Benchmark Rule (Compliance) No 1 of 2003 and the Greenhouse Gas Benchmark Rule (Generation) No 2 of 2003 are most relevant to this fact sheet.

This fact sheet should not be relied upon as a substitute for legal advice and is designed to be read in conjunction with the above source documents.