

THE DIRTY DOZEN

How Australia's 12 worst polluting coal power plants are taking taxpayers for a **\$6.45 billion** ride

AUSTRALIA'S DIRTY DOZEN: YOUR DOLLARS UP IN SMOKE

Australia's biggest power plants have a \$6.45 billion a year carbon problem, and we are the ones footing the bill.

According to the latest figures, Australia's energy industry spewed out an enormous 180 million tonnes of carbon dioxide in 2013-2014, making it our single biggest contributor to CO₂ emissions and representing a third of Australia's total carbon footprint.^[1]

More than half of the energy sector emissions come from twelve power plants alone, with these facilities accounting for around 117m tonnes of carbon dioxide in the latest yearly figures.^[2]

We're calling them the Dirty Dozen – the top 12 polluting power plants in Australia, compiled from the latest emissions data. In order, they are: **Loy Yang A** (Vic), **Hazelwood** (Vic), **Bayswater** (NSW), **Yallourn** (Vic), **Eringarook** (NSW), **Loy Yang B** (Vic), **Mount Piper** (NSW), **Stanwell** (Qld), **Liddell** (NSW), **Gladstone** (Qld), **Millmerran** (Qld) and **Vales Point** (NSW).

The combined emissions of these twelve power plants is massive – higher than the total carbon footprint of more than 151 entire countries and representing more than a fifth of Australia's total emissions.^[3]

[1] Australia's emissions projections 2014 –15, Department of the Environment, March 2015

[2] Designated Generation Facilities Report 2013-14, Clean Energy Regulator, 8 May 2015

[3] CAIT Climate Data Explorer, World Resources Institute, 22 June 2015



AUSTRALIANS FOOT THE BILL FOR OVER **\$6.45 BILLION** A YEAR IN SUBSIDIES TO TWELVE POWER PLANTS ALONE

Australians have a right to know how much the power plants in their neighbourhoods are costing them every year.

Overall, the subsidies to the Australian fossil fuel industry are staggering. The International Monetary Fund estimates the Australian fossil fuel industry is subsidised by an incredible \$42 billion per annum – that equals \$1792 a year for each and every Australian alive today.^[4]

This figure is a combination of handouts to the industry – like publicly-funded infrastructure and tax concessions – as well as effective subsidies for the damage fossil fuel companies do to our community, our health, and the natural environment now and into the future. Using a internationally-accepted metric for calculating the cost of damage caused by carbon pollution, we estimate the subsidies to Australia's top twelve polluting power plants to be over \$6.45 billion a year for their carbon dioxide emissions alone.

[4] Counting the Cost of Energy Subsidies, International Monetary Fund, 17 July 2015



EVERY TONNE OF CARBON DIOXIDE EMITTED **COMES WITH A HIDDEN COST**

This report uses a measurement called the Social Cost of Carbon (SC-CO₂) to calculate the cost of the damage caused by the Dirty Dozen each year.

The SC-CO₂ was developed by the United States government for use in policy development, investment decisions and cost-benefit analyses of public projects. It takes into account known effects of climate change including impacts on agricultural productivity, food security and human health, as well as coastal destruction, increased costs of temperature control and damage to property and infrastructure from increased flooding.^[5]

The SC-CO₂ is a widely-recognised standard cited by organisations as diverse as the Organisation for Economic Co-operation and Development, the US Environmental Protection Agency, the World Bank and the International

Monetary Fund, although many countries and firms use their own modelling to assess for the financial and environmental impact of carbon pollution.^[6]

This report takes the central SC-CO₂ estimate of \$40 USD (\$55 AUD) per tonne of CO₂ emitted. Importantly, the SC-CO₂ measurement is not considered comprehensive, and omits many of the expected economic impacts of climate change that are too uncertain or complex to capture in present-day modelling. It has been suggested the true social cost of carbon dioxide is in fact much higher, with a recent Stanford study pegging it at a higher \$315 per tonne.

This suggests our figure of \$6.45 billion in subsidies is a bare minimum, and the true social cost of running the Dirty Dozen could be as high as **\$37 billion** for one year alone.^[7]

[5] Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis, US Government Interagency Working Group on Social Cost of Carbon, July 2015

[6] The Cost of Carbon Pollution, Environmental Defense Fund, the Institute for Policy Integrity, and the Natural Resources Defense Council, September 2015

[7] Estimated social cost of climate change not accurate, Stanford scientists say, Stanford News, 12 January 2015

THE FACTS ARE CLEAR: COAL-FIRED POWER COMPANIES ARE GETTING A **\$6.45 BILLION FREE** RIDE ON THEIR POLLUTION

Ordinary Australians know they can't just dump their garbage on the street for free – and if they do they'll face a hefty fine. But that's exactly what fossil fuel companies like those behind the Dirty Dozen are doing every single day.

These companies don't have to pay a cent for the very real damage their product is causing to health, the local economy and the natural environment. Instead, those costs are borne by society, with tax-payers footing the bill for extra

health facilities, environmental programs and other measures to help mop up the pollution these companies create but don't pay for.

Many of those costs may be invisible now, but they add up, and unless something changes society will be paying the bill for these companies long after the Dirty Dozen have shut their doors and switched off their coal-powered lights for the last time.

WHAT DOES THIS REPORT SHOW?

117 million+ tonnes of CO2 emitted by Australia's top 12 polluting power plants

Almost **\$6.5 billion in effective subsidies** provided to the companies that run the Dirty Dozen

For one year of operation, Victoria faces **\$2.9 billion** in effective subsidies, or **\$504** per person, for the four Dirty Dozen power plants operating in the state.

Four plants in New South Wales are effectively subsidised at a cost of **\$2.4 billion** for a year, averaging **\$323 per person** in the state.

The operation of Queensland's power plants equates to **\$1 billion** in effective subsidies for a year, or **\$227 per person** in the state.

WHAT IS THE DIRTY DOZEN?

The Dirty Dozen is the name this report gives to the top 12 polluting power plants in Australia, compiled from the latest emissions data. In order, these are: **Loy Yang A** (Vic), **Hazelwood** (Vic), **Bayswater** (NSW), **Yallourn** (Vic), **Eraring** (NSW), **Loy Yang B** (Vic), **Mount Piper** (NSW), **Stanwell** (Qld), **Liddell** (NSW), **Gladstone** (Qld), **Millmerran** (Qld) and **Vales Point** (NSW).

WHO RUNS THE DIRTY DOZEN?

These twelve coal-fired generators are owned and operated by a range of large energy companies including AGL, GDF Suez, Origin, EnergyAustralia, Delta Energy, Rio Tinto, Stanwell and others.

They all enjoy the benefit of being able to burn fossil fuels without having to pay for the billions of dollars in estimated damage their actions cause to local communities, the health of Australians and the natural environment.



JUST HOW DIRTY IS THE DIRTY DOZEN?

Very dirty. According to the latest data, the twelve plants emitted around 117 million tonnes of carbon dioxide for the 2013-2014 financial year. That's 65% of the emissions from Australia's energy sector, and around 20% of the entire country's carbon footprint.^[8]

Their combined emissions are higher than the national emissions of 151 entire countries, including New Zealand, Norway, Israel, Hungary, Singapore, Switzerland and the Czech Republic as well as less industrialised countries like Libya, Cambodia, Chile, Qatar and Peru.^[9]

WHERE'S THIS INFORMATION FROM?

This report was compiled using the latest emissions data available from the Australian Government's Clean Energy Regulator and the National Pollutant Inventory. Carbon dioxide equivalencies were sourced from the United States government's Environmental Protection Agency Greenhouse Gas Equivalencies Calculator, and modelling conducted by UK organisation ClimateCare. Comparisons with government expenditure on public service positions were sourced from the Australian Bureau of Statistics' Employee Earnings and Hours dataset, while comparisons with expenditure on public infrastructure and education facilities were sourced from the Turner & Townsend International Construction Cost Survey (2013), the official Perth Airport website, the website of the Melbourne Royal Children's Hospital and the New South Wales Infrastructure Education Infrastructure Baseline Report by PricewaterhouseCoopers.

Population data was sourced from the Australian Bureau of Statistics' Regional Population Growth dataset for 2013-2014, the corresponding time period for the latest emissions data. The social cost of the plants' carbon emissions was calculated using the SC-CO₂ system devised by a US interagency group, currently set at \$40 USD (\$55 AUD) per tonne at a 3% discount rate.

[8] Australia's emissions projections 2014 -15, Department of the Environment, March 2015

[9] CAIT Climate Data Explorer, World Resources Institute, 22 June 2015

THE DIRTY DOZEN

Together they emit **117,346,474** tonnes of CO2
THE EQUIVALENT OF:


45,133,259
Extra Cars


50 BILLION
litres of fuel burned


86,284
flights from Sydney
to Heathrow

Higher than the carbon output of **151 entire countries** including:



Belgium



Israel



Ireland



Chile



Norway



Austria



Hungary



Denmark

Also Cambodia, Czech Republic, Peru and many more

SUBSIDIES

The **Dirty Dozen** cost
Australian Tax payers
in effective subsidies from unmet cost of emissions in one year alone

\$6,454,000,000

THE EQUIVALENT OF:

6 
major hospitals

or

53 
Airport terminals

855 
New schools

OR THE YEARLY SALARIES OF:



75,309
Paramedics

or

101,726 
Registered nurses

77,933 
School teachers

THE DIRTY DOZEN IN YOUR STATE:



Queensland

Stanwell Power Station: 7.2 million tonnes CO2

Gladstone Power Station: 6.5 million tonnes CO2

Millmerran Power Station: 5.6 million tonnes CO2

CO2 from Dirty Dozen facilities: 19,552,574 tonnes

Social Cost: \$1,075,391,570

\$227 per person in Queensland

New South Wales

Bayswater Power Station:

13.3 million tonnes CO2

Eraring Power Station:

10.5 million tonnes CO2

Mt Piper Power Station:

7.8 million tonnes CO2

Liddell Power Station:

6.7 million tonnes CO2

Vales Point Power Station:

5.6 million tonnes CO2

CO2 from Dirty Dozen facilities:

44,252,371 tonnes

Social Cost: \$2,433,880,406

\$323 per person in NSW

Victoria

Loy Yang A Power Station:

18.4 million tonnes CO2

Hazelwood Power Station:

15.4 million tonnes CO2

Yallourn Power Station:

11.3 million tonnes CO2

Loy Yang B Power Station:

8.2 million tonnes CO2

CO2 from Dirty Dozen facilities:

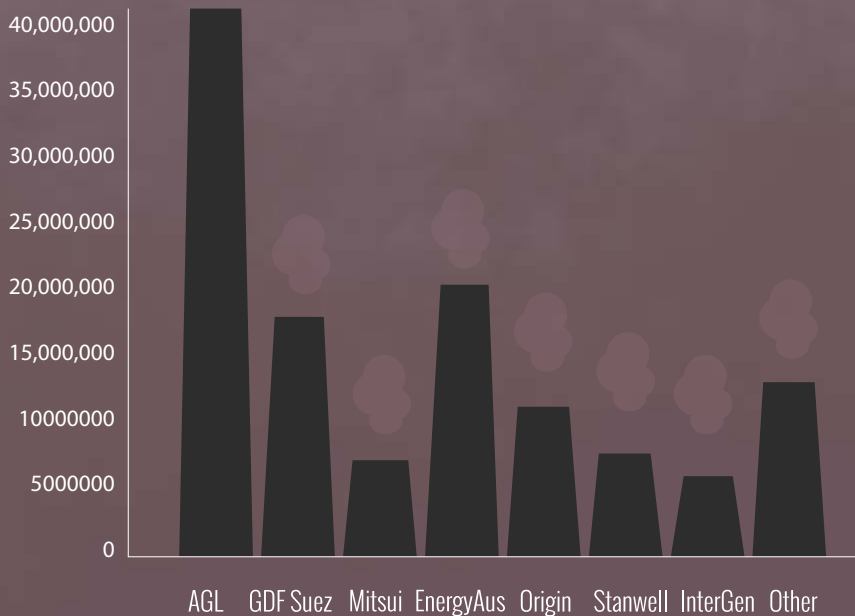
53,541,529 tonnes

Social Cost: \$2,944,784,095

\$504 per person in Victoria

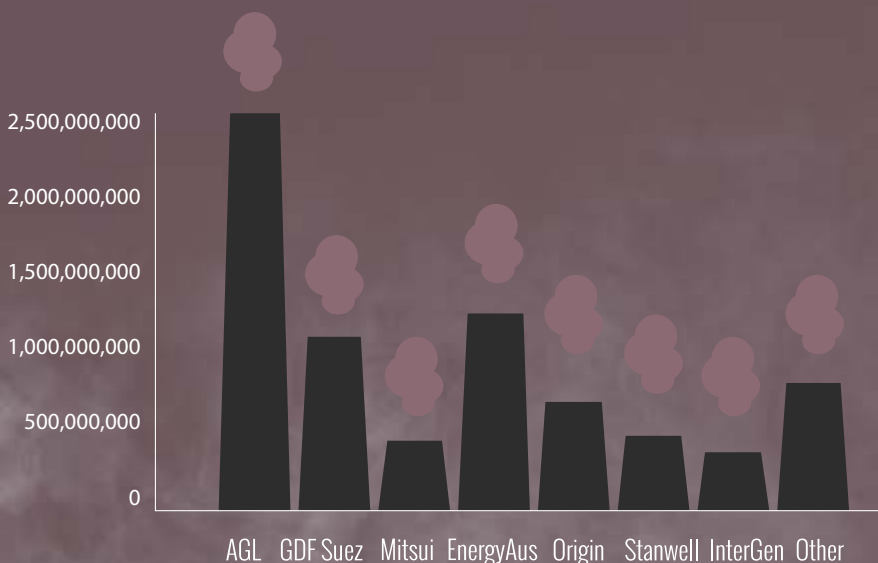
DIRTY DOZEN EMISSIONS AND SUBSIDIES BY COMPANY

Carbon Dioxide Emissions (tonnes) ^[1]



AGL	38,651,703 tonnes
GDF Suez	16,913,465 tonnes
Mitsui	6,806,694 tonnes
EnergyAus	19,180,908 tonnes
Origin	10,579,819 tonnes
Stanwell	7,282,279 tonnes
InterGen	5,683,418 tonnes

Effective Subsidies (AUD) ^[2]



AGL	\$2,125,843,665
GDF Suez	\$930,240,562
Mitsui	\$374,368,183
EnergyAus	\$1,054,949,940
Origin	\$581,890,045
Stanwell	\$400,525,345
InterGen	\$312,587,990

1. Company's share of carbon output from Dirty Dozen facilities in 2013-2014 - Clean Energy Regulator

2. Company's share of social cost subsidies from Dirty Dozen carbon pollution in 2013-2014 - Based on SC-CO₂ of \$55

AUSTRALIA'S DIRTY DOZEN

RANK	POWER PLANT	COMPANY	LOCATION	EMISSIONS	CARBON EQUIVALENCIES	SUBSIDY EQUIVALENCIES
1	Loy Yang A	AGL	Bartons Lane, Traralgon Vic 3844	Carbon emissions: 18,480,990 tonnes [1] Effective Subsidies: \$1,016,454,450 [2]	Cars 7,108,073 Flights: Sydney to Heathrow 13,588 Flights: Sydney to Adelaide 528,028 Litres of petrol burned 7,891,382,644	Police officers 10,321 Paramedics 11,860 Registered Nurses 16,020 GPs 7,464 Teachers 12,273 Hospitals 1 Airport terminals 8 New schools 134
2	Hazelwood	GDF Suez (72%), Mitsui (28%)	Hazelwood Power complex, Brodrribb Rd, Morwell Vic 3840	Carbon emissions: 15,467,673 tonnes Effective Subsidies: \$850,722,015	Cars 5,949,105 Flights: Sydney to Heathrow 11,373 Flights: Sydney to Adelaide 441,933 Litres of petrol burned 6,604,696,299	Police officers 8,638 Paramedics 9,926 Registered Nurses 13,408 GPs 6,247 Teachers 10,272 Airport terminals 7 New schools 112
3	Bayswater	AGL	New England Highway, Muswellbrook, NSW 2333	Carbon emissions: 13,391,008 tonnes Effective Subsidies: \$736,505,440	Cars 5,150,387 Flights: Sydney to Heathrow 9,846 Flights: Sydney to Adelaide 382,600 Litres of petrol burned 5,717,960,354	Police officers 7,478 Paramedics 8,593 Registered Nurses 11,608 GPs 5,408 Teachers 8,893 Airport terminals 6 New schools 97
4	Yallourn	EnergyAustralia	Yallourn North Rd, Yallourn North, Vic 3825	Carbon emissions: 11,340,380 tonnes Effective Subsidies: \$623,720,900	Cars 4,361,684 Flights: Sydney to Heathrow 8,338 Flights: Sydney to Adelaide 324,010 Litres of petrol burned 4,842,342,207	Police officers 6,333 Paramedics 7,277 Registered Nurses 9,830 GPs 4,580 Teachers 7,531 Airport terminals 5 New schools 82
5	Eraring	Origin	Rocky Point Rd, Eraring, NSW 2264	Carbon emissions: 10,579,819 tonnes Effective Subsidies: \$581,890,045	Cars 4,069,161 Flights: Sydney to Heathrow 7,779 Flights: Sydney to Adelaide 302,280 Litres of petrol burned 4,517,582,664	Police officers 5,908 Paramedics 6,789 Registered Nurses 9,171 GPs 4,273 Teachers 7,026 Airport terminals 4 New schools 77
6	Loy Yang B	GDF Suez (70%), Mitsui (30%)	Bartons Lane, Traralgon Vic	Carbon emissions: 8,252,486 tonnes Effective Subsidies: \$453,886,730	Cars 3,174,033 Flights: Sydney to Heathrow 6,068 Flights: Sydney to Adelaide 235,785 Litres of petrol burned 3,523,811,483	Police officers 4,608 Paramedics 5,296 Registered Nurses 7,154 GPs 3,333 Teachers 5,480 Airport terminals 3 New schools 60

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Mount Piper	EnergyAus	350 Boulder Road, Portland, NSW 2847	Carbon emissions: 7,840,528 tonnes Effective Subsidies: \$431,229,040	Cars 3,015,587 Flights: Sydney to Heathrow 5,765 Flights: Sydney to Adelaide 224,015 Litres of petrol burned 3,347,905,419	Police officers 4,378 Paramedics 5,031 Registered Nurses 6,796 GPs 3,166 Teachers 5,207 Airport terminals 3 New schools 57
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Stanwell	Stanwell	Capricorn Highway, Gracemere, Qld 4702	Carbon emissions: 7,282,279 tonnes Effective Subsidies: \$400,525,345	Cars 2,800,876 Flights: Sydney to Heathrow 5,354 Flights: Sydney to Adelaide 208,065 Litres of petrol burned 3,109,533,099	Police officers 4,066 Paramedics 4,673 Registered Nurses 6,312 GPs 2,941 Teachers 4,836 Airport terminals 3 New schools 53
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Liddell	AGL	NewEngland Highway, Muswellbrook, NSW 2333	Carbon emissions: 6,779,705 tonnes Effective Subsidies: \$372,883,775	Cars 2,607,578 Flights: Sydney to Heathrow 4,985 Flights: Sydney to Adelaide 193,705 Litres of petrol burned 2,894,934,003	Police officers 3,786 Paramedics 4,350 Registered Nurses 5,877 GPs 2,738 Teachers 4,502 Airport terminals 3 New schools 49
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Gladstone	Rio Tinto, NRG Energy and others	353 Hanson Rd, Gladstone, Qld 4680	Carbon emissions: 6,586,877 tonnes Effective Subsidies: \$362,278,235	Cars 2,533,414 Flights: Sydney to Heathrow 4,843 Flights: Sydney to Adelaide 188,196 Litres of petrol burned 2,812,596,448	Police officers 3,678 Paramedics 4,227 Registered Nurses 5,710 GPs 2,660 Teachers 4,374 Airport terminals 3 New schools 48
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Millmerran	InterGen	Moffat Reserve Rocky Creek Rd, Millmerran, Qld 4357	Carbon emissions: 5,683,418 tonnes Effective Subsidies: \$312,587,990	Cars 2,185,930 Flights: Sydney to Heathrow 4,178 Flights: Sydney to Adelaide 162,383 Litres of petrol burned 2,426,819,459	Police officers 3,174 Paramedics 3,647 Registered Nurses 4,926 GPs 2,295 Teachers 3,774 Airport terminals 2 New schools 41
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Vales Point	Private Owners	Off Vales Road, Mannering Park, NSW 2259	Carbon emissions: 5,661,311 tonnes Effective Subsidies: \$311,372,105	Cars 2,177,427 Flights: Sydney to Heathrow 4,162 Flights: Sydney to Adelaide 161,751 Litres of petrol burned 2,417,379,770	Police officers 3,161 Paramedics 3,633 Registered Nurses 4,907 GPs 2,286 Teachers 3,759 Airport terminals 2 New schools 41
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References

[1] Greenhouse and Energy information 2013-14, Clean Energy Regulator, 8 May 2015

[2] Based on social cost of carbon of \$40 USD [\$55 AUD] per metric tonne. EPA Fact Sheet: Social Cost of Carbon, United States Environmental Protection Agency, July 2015