Media backgrounder: Hazelwood closure

21 March 2017

Environment Victoria has been deeply involved in discussions about Hazelwood's future from the early 2000s, actively campaigning against the expansion of the Hazelwood mine in 2005 and then running a long-running campaign for the retirement and replacement of the power station.

Twice campaigns run by Environment Victoria were successful in achieving closure commitments, first by the Brumby government in 2010, and then through the establishment of the 'Contracts for Closure' program under the Gillard government. In both instances changed political circumstances gave Hazelwood a lifeline to keep operating.

In recent times Environment Victoria successfully campaigned for the reopening of the Hazelwood Mine Fire Inquiry, and was one of just five parties to the Inquiry, which led to major increases in mine rehabilitation bonds and regulatory standards. The campaign to replace Hazelwood focussed its efforts over the past 2 years on ENGIE, the French Government (who own ENGIE) and Hazelwood's financiers, such as the ANZ Bank.

More about the campaign >

For further background on any of the issues in this briefing, or on the long-running campaign to replace Hazelwood contact:

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Topics covered in this backgrounder:

- General information about Hazelwood
- Climate pollution
- Health and environmental impacts
- The need for a planned transition away from coal
- What will happen to the mine and power station once they close?
- Hazelwood worker transition plans
- Environment Victoria's *Life After Coal* report
- Energy prices
- Energy security
- What needs to happen next in the electricity system?
- Victorian support for closure

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About Hazelwood

Hazelwood power station, located in Victoria's Latrobe Valley, is a 1600 megawatt (MW) brown coal generator made up of eight 200 MW units constructed between 1964 and 1971. It was originally scheduled to be retired in 2005.

Hazelwood is jointly owned by ENGIE (formerly GDF Suez), with a 72 percent share, and Mitsui & Co. with a 28 percent share. The power station is fed by the adjacent open cut brown coal mine, under the same ownership structure.

ENGIE, the world's second largest electricity utility, has committed to making climate change a priority by signing onto the COP 21 Business and Climate Summit.[1] In May 2016, CEO Isabelle Kocher said the company was reviewing its remaining coal plants one by one and would close those with the most outdated technology.[2]

The largest shareholder in ENGIE is the French government, which owns 33 percent of the company. The French Environment Minister said ENGIE would 'disengage' from Hazelwood power station during a documentary that aired on French TV in May 2016. The Minister's response came after receiving a petition on air from Environment Victoria supporters about the Hazelwood mine fire and the need to phase out polluting coal power stations like Hazelwood.[3]

ENGIE has committed to a transformation plan aiming at reducing its carbon footprint, mainly through reduction of its total coal-fired installed generation capacity. In 2016 alone it reduced that capacity by 20 percent through selling its interest in two coal-fired power stations in India and Indonesia, as well as some thermal assets (gas and coal-fired) in the US.[4] ENGIE is also currently trying to sell its other Latrobe Valley power station, Loy Yang B. ENGIE's business transformation is part of the growing global corporate recognition of climate change as a key challenge for society and the need to transition towards a zero-carbon economy.

On 3 November 2016, ENGIE announced it would close Hazelwood at the end of March 2017.[5]
In December 2016, it was revealed that Hazelwood was the subject of numerous WorkSafe notices, requiring extensive work to make the site safe. ENGIE estimated the cost of complying with the notices would be $400 million.[6]

Climate pollution from Hazelwood

Hazelwood is Australia's 'dirtiest' power station, meaning it produces the most carbon dioxide for the amount of electricity it generates. At 1.56 tonnes of CO_2 for each megawatt hour of electricity, it is 50

[1] http://www.engie.com/en/engie-makes-climate-its-priority/
[2] https://www.reuters.com/article/engie-coal-australia-idUSL5N18M5PF?type=companyNews
[3] http://www.theage.com.au/victoria/french-government-signals-end-of-victorias-hazelwood-coal-plant-20160526-gp4bbv.html
[4] http://www.engie.com/en/journalists/press-releases/closing-of-asset-disposals-united-states-and-asia/
[5] http://www.gdfsuezau.com/media/UploadedDocuments/News/Hazelwood%20Clousure/Hazelwood%20closure%20-%20Media%20release.pdf
[6] http://www.abc.net.au/news/2016-12-01/worksafe-notices-detail-extent-of-repairs-needed-at-hazelwood/8082318

percent more polluting than the average black coal power station in NSW or Queensland. Hazelwood emits 14 percent of Victoria's annual greenhouse gas emissions and 3 percent of Australia's greenhouse gas emissions.

The closure of Hazelwood power station could reduce Victoria's annual climate pollution by 16,000,000 tonnes – an essential step towards the rapid reduction in greenhouse gas emissions required to avoid the worst impacts of climate change. Australia is one of the developed countries most at risk from climate change, and impacts are growing more severe year by year.

Health and environmental impacts

Each year, Hazelwood uses 27 billion litres of water and emits 7800 tonnes of hydrochloric acid. It's also in the top five biggest polluters in the country of toxic fine particulate matter (PM 2.5),[7] which is a significant danger to human health.

Burning coal is responsible for approximately 95 percent of air pollution in the Latrobe Valley, according to the Victorian Environment Protection Authority's submission to the Hazelwood Mine Fire Inquiry into Health Improvement.

The Hazelwood mine fire in 2014 burned for 45 days, blanketing the surrounding area in toxic smoke and contributing to the deaths of 11 people. It was one of the worst pollution events in Victoria's history. Photo credit: Herald Sun.

Stopping air pollution has immediate health benefits. Air pollution contributes to the premature death of over 3000 Australians every year, with coal a major contributor.[8] The risk of premature death for

[7] http://www.npi.gov.au/

[8] http://www.smh.com.au/environment/3000-deaths-caused-by-air-pollution-each-year-prompt-calls-for-tougher-standards-20151113-gkygv1.html

people living within 50 kilometres of coal-burning power stations can be as much as 3-4 times that of people living at a greater distance.[9]

In 2014, part of the coal mine that supplies Hazelwood power station caught fire. It burned for 45 days, blanketing the surrounding area in toxic smoke. 11 premature deaths were attributed to the mine fire,[10] a finding vindicated by the Hazelwood Inquiry.[11]

Air pollution from the normal operations of Hazelwood alone has been estimated to kill at least 18 people a year in Gippsland, and make many more people sick. The estimated annual health burden on the community of Hazelwood's air pollution is $100 million each year as calculated by Harvard University researchers using methodology developed by the US National Academy of Sciences.[12]

The need for a planned transition away from coal

It is widely accepted that a government-led plan is needed to manage the phase-out of coal-burning power stations as part of a comprehensive plan to deal with global warming. Burning coal is responsible for around 50 percent of Victoria's and over 30 percent of Australia's climate pollution.

The Australian Energy Market Operator, which controls the National Electricity Market (connecting Victoria, NSW, Queensland, Tasmania, South Australia and the ACT), has estimated that meeting the current (very weak) federal climate targets will require the closure of 8700 MW of coal-burning power stations before 2030.[13] This means that another 5 power stations of Hazelwood's capacity would have to be closed in the next 13 years. More ambitious targets, which are necessary for Australia to play its proportionate role in international efforts, would mean many more coal power stations would need to close over that timeframe. The Climate Institute, in giving evidence at a current Senate Inquiry into the Retirement of Coal Fired Power Stations, estimated that one Hazelwood-sized power station would need to close in Australia each year from now until the early 2030s to contribute to efforts to keep warming under two degrees.[14]

A transition away from coal will have impacts on both the electricity market and the local communities, however, there is currently no national plan to manage the orderly closure of coal-burning power stations and provide support to affected workers and communities. This leaves those communities vulnerable to closure decisions with little warning or time to prepare.

The table below summarises power station closures over the past five years and the amount of notice communities and workers have been given by operators. For the 9 power stations closing in the past 5 years (including Hazelwood), an average of just 4 months' notice from announcement to closure has been given.

[9] http://caha.org.au/wp-content/uploads/2010/01/Climate-Council_HealthEffectsofCoal_WEB-PDF.pdf
[10] http://www.abc.net.au/news/2014-09-12/hazelwood-mine-fire-pollution-blamed-for-11-deaths/5740824
[11] http://www.abc.net.au/news/2015-12-09/hazelwood-mine-fire-likely-caused-latrobe-deaths-inquiry-finds/7004546
[12] http://environmentvictoria.org.au/wp-content/uploads/2016/06/Hazelwood-Report-Social-cost-of-carbon.pdf
[13] https://www.aemo.com.au/media/Files/Other/consultations/nem/2016%20Consultation%20%20NTNDP.pdf, section 3.1.2
[14] https://www.theguardian.com/environment/2016/nov/09/australias-coal-fired-power-stations-will-need-to-shut-at-rate-of-one-a-year-hearing-told

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Power station name	State	Size (MW)	Date closure announced	Date closure occurred/will occur	Notice period for workers and communities
Collinsville	Qld	190	June 2012	December 2012	**6 months**
Munmorah[15]	NSW	1400	July 2012	July 2012	**none**
Wallerawang C[16]	NSW	1000	Jan 2014	April 2014	**4 months**
Redbank	NSW	151	Oct 2014	Oct 2014	**none**
Energy Brix	Vic	170	July 2014	August 2014	**1 month**
Anglesea	Vic	150	May 2015	Aug 2015	**3 ½ months**
Playford B	SA	240	June 2015	October 2015	**4 months**
Northern	SA	520	June 2015	May 2016	**11 months**
Hazelwood	Vic	1600	Nov 2016	*March 2017*	**5 months**

The lack of notice makes it difficult for communities and governments to adequately plan for life beyond coal. Corporate owners can play a role in creating more certainty ahead of time: recently, EnergyAustralia (who own the Yallourn power station in Victoria and Mt Piper power station in NSW) called for power station owners to give advance notice of when they will close.[17] Unfortunately, as recently as February 2016, ENGIE was insisting that Hazelwood would be open until 2032 – a scenario that was objectively very unlikely.

Coal power stations will continue to close – ageing generators become increasingly costly to maintain and can't compete in a modern energy system with growing amounts of renewable energy. Whether these closures go well or badly depends on how well we plan for them.

Calls for a plan to actively manage the phase-out of coal-burning power stations and support affected communities are coming from diverse sources. The Chief Finance Officer of AGL said that "a planned phase-out of coal plants is needed to *reduce* the risk of blackouts, because it will send a signal to the market that more renewable energy should be built."[18]

Another AGL spokesperson has said "Policies that support the decarbonisation of the Victorian generation sector are welcome but it is critical the policy provides a clear pathway for a stable and orderly transition."[19]

[15] Munmorah had been on standby (i.e. not dispatching) at time of closure announcement
[16] Half of Wallerawang was mothballed in Jan 2013
[17] http://www.afr.com/news/politics/energyaustralia-and-agl-back-an-emissions-intensity-scheme-for-the-electricity-sector-20170305-guqyn2
[18] http://www.afr.com/business/energy/electricity/agl-energy-warns-of-blackout-risk-without-orderly-brown-coal-plant-closure-20160616-gpl73c
[19] http://www.latrobevalleyexpress.com.au/story/3978056/win-for-renewable-energy/

A spokesperson for EnergyAustralia (owners of Yallourn power station) said "We need an orderly, realistic transition from large, older coal-fired power stations."[20]

Unions support planning the transition away from coal-fired power stations, best summarised in a discussion paper by the ACTU.[21]

The Business Council of Australia said "Victoria needs a managed transition away from coal-fired electricity generation. Given the profile of Victoria's coal-fired generation fleet, a more managed transition policy would seek to minimise the risks of this transition on system security and individual communities throughout Victoria."[22]

Professor Ross Garnaut (former Australian climate advisor) has called for Latrobe Valley power stations to be phased out within five years. "We have to get emissions from brown coal generation quickly onto a downward path... we could replace coal generation from other sources through a combination of energy efficiency and renewable energy generation."[23]

Indeed, a number of studies have shown that there are no technical barriers to powering Australia with 100 percent renewable energy – most recently from the Institute for Sustainable Futures at the University of Technology Sydney[24] and the CSIRO.[25] The CSIRO analysis (joint with Energy Networks Australia) found that moving to 100 percent renewable energy would be $100 billion cheaper than business as usual.

Protesters outside ANZ in 2016 calling on the bank not to renew its US$147 loan to Hazelwood. ANZ did not renew the loan.

[20] http://www.latrobevalleyexpress.com.au/story/3978056/win-for-renewable-energy/
[21] http://www.actu.org.au/our-work/policy-issues/actu-policy-discussion-paper-a-just-transition-for-coal-fired-electricity-sector-workers-and-communities
[22] http://www.bca.com.au/publications/victorian-renewable-energy-auction-scheme
[23] http://www.abc.net.au/radionational/programs/breakfast/australian-carbon-price-inevitable-garnaut/6985734
[24] https://www.theguardian.com/environment/2016/apr/19/modelling-shows-move-to-100-renewable-energy-would-save-australia-money
[25] http://reneweconomy.com.au/csiro-says-australia-can-get-100-per-cent-renewable-energy-86624/

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What will happen to the mine and power station once they close?

ENGIE is under a legal obligation to rehabilitate the mine site, an effort which is unprecedented in size in Australia. The current proposal is to transform the mine site into a lake, which could take decades, and there are major unanswered questions about both the availability of sufficient water and the quality of the water in the final lake.[26]

The challenges of mine rehabilitation in the Latrobe Valley were covered extensively in the second Hazelwood Mine Fire Inquiry.[27]

The power station itself will be decommissioned and eventually demolished, with final plans for the site yet to be finalised, awaiting community consultation. ENGIE has estimated that site clean-up costs, covering both mine rehabilitation and power station demolition, will cost over $700 million.[28] They have announced that this will employ approximately 135 full time employees and 110-130 contractors.[29]

Hazelwood transition plans

Hazelwood employs 495 people directly and on average around 300 contractors.[30]

The Andrews government has helped negotiate a ground-breaking worker transfer scheme that allows older workers at AGL's Loy Yang A power station to take early retirement packages, meaning 150 younger workers from Hazelwood will be able to transfer to those roles at Loy Yang A.[31] Negotiations continue to secure transfers to Yallourn and Loy Yang B power stations.

ENGIE has offered extensive redundancy packages to its staff and estimates that around 70 current employees will retire, either due to their age or because they do not wish to seek reemployment.[32]

Together with mine rehabilitation and power station demolition, these schemes ensure that the number of job losses will be much lower than initially expected.

The Victorian government has overall committed $266 million to support economic transition in the Latrobe Valley. This includes $20 million for the establishment of the Latrobe Valley Authority and $22 million to directly retrain and assist workers in the Valley. The largest component of funding will establish a Community Infrastructure and Investment Fund to support new projects. The state funding

26 http://www.abc.net.au/news/2016-11-07/expert-warns-of-hazelwood-rehabilitation-challenges/8001284
27 http://www.theage.com.au/victoria/latrobe-valley-brown-coal-mine-cleanup-bonds-fall-short-20160414-go6272.html
28 http://www.smh.com.au/business/mining-and-resources/hazelwood-owners-facing-unprecedented-743-million-rehab-bill-20170119-gtun85.html
29 Engie FAQ Factsheet on Hazelwood Power Station & Mine, February 2017
30 http://hazelwoodinquiry.vic.gov.au/wp-content/uploads/2015/08/GDF-SAE-Submission.pdf
31 http://www.theage.com.au/victoria/great-news-for-hazelwood-as-transfer-deal-lets-workers-jump-to-new-power-jobs-20170309-guv1ti.html
32 Information from Trevor Rowe, Engie Community Strategist, at the Hazelwood Community consultation, 15 March 2017

is topped up by $43 million of federal funding, of which $23 million are dedicated to support Hazelwood employees and create new jobs in the region.[33]

The Victorian government recently committed to spend $85 million in the Valley on a range of sports and recreation projects, which are expected to create 300 jobs during construction and 275 ongoing jobs.[34]

The Victorian government has also announced a $5 million energy upgrade program, which will provide access to tailored packages of solar panels or solar hot water systems and improvements like energy efficient lighting at no cost. The program will benefit up to 1,000 households and be targeted at those with the highest needs. Energy upgrades for low incomes homes was identified as a potential driver of new economic activity in the Latrobe Valley in Environment Victoria's recent *Life After Coal* report (see below). The report also outlined the benefits of supporting the establishment of solar hot water manufacturing in the region.

Life after coal

A report from Environment Victoria in late 2016, *Life After Coal: Pathways to a Just and Sustainable Transition for the Latrobe Valley*,[35] details how an effective transition could take place.

Drawing on experiences in other regions, the report found that successful transitions are led by the community and supported by governments. The report outlines six case studies for creating new and sustainable economic activity in the Latrobe Valley, including the development of a home energy efficiency retrofit program for Gippsland, which could create up to 620 jobs and reduce the cost of living for households.[36]

A prominent billboard on Melbourne's Hoddle St was part of the early campaign to replace Hazelwood.

[33] http://www.weeklytimesnow.com.au/news/national/hazelwood-closure-victorian-and-federal-governments-pledge-funding/news-story/146da966660e73c386fe6909191efe15
[34] http://www.premier.vic.gov.au/big-win-for-sport-across-the-valley/
[35] http://environmentvictoria.org.au/newsroom/report/life-after-coal
[36] http://environmentvictoria.org.au/newsroom/report/life-after-coal p.26.

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Energy prices

Hazelwood's closure will, in the short term, increase energy prices until replacement capacity is built. As coal-burning power stations are phased out, increasing amounts of renewable energy will be built. The wind blows for nothing and the sun shines for free, so once renewable energy projects are built they are very cheap to run. This means they can provide electricity at much lower cost than coal power, and ultimately this will push electricity prices down – even Tony Abbott's hand-picked review of the Renewable Energy Target said this.[37] Technologies are getting cheaper and cheaper, meaning the costs fall even further.

For example, the cost of building solar plants has fallen by 25 percent in only five months.[38] From 2009 to 2014, the price of photovoltaic solar panels dropped 80 percent, and that of wind turbines by a third.[39]

Renewable energy is now the cheapest source of new electricity supply, and renewable energy plus storage is the cheapest form of "firm" energy (ie. dispatchable when required).[40]

Policy uncertainty and rising gas prices have also been a major contributor to rising energy prices: Wholesale prices are now twice as high as when the carbon price was in place.[41]

French Energy Minister Segolene Royale reads a postcard petition, one of thousands, from an Environment Victoria supporter on French national television, calling on the French Government to use its shareholding in ENGIE to retire Hazelwood.

[37] http://webarchive.nla.gov.au/gov/20150403183612/http://retreview.dpmc.gov.au/ret-review-report-0
[38] http://futurism.com/solar-power-cost-has-dropped-25-in-only-5-months/
[39] https://www.irena.org/rethinking/IRENA%20_REthinking_Energy_2nd_report_2015.pdf p.12
[40] http://www.reputex.com/research-insights/a-cost-curve-for-emissions-reductions-energy-storage-in-the-australian-power-sector/
[41] http://www.smh.com.au/federal-politics/political-news/energy-crisis-wholesale-power-prices-have-doubled-since-the-carbon-tax-was-axed-20170308-gutf8t.html

The lights will stay on

After much speculation in late 2016, the Australian Energy Market Operator confirmed that the closure of Hazelwood will have a negligible impact on the reliability of the energy grid.[42] Hazelwood has historically generated about 11-12 terawatt-hours of electricity each year.[43] This is approximately 5 percent of energy generated in the National Electricity Market. Other, cleaner sources of electricity generation are able to increase production to supply generation lost from Hazelwood.

The Victorian government's Renewable Energy Auction Scheme will see 5400 megawatts of new renewable energy built in Victoria alone by 2025 and 1500 MW by 2020.[44] The 5400 megawatts could produce approximately 30 percent more energy than is currently delivered by Hazelwood.[45]

What needs to happen next in the electricity system?

It is vital Australia puts in place a strategy to modernise its electricity system, starting with closing the most polluting power stations and transitioning away from coal.

Leaving the inevitable power station closures to the market does not necessarily achieve an optimal outcome from a carbon emissions perspective (e.g. if the lost capacity from a less polluting plant is taken up by a more polluting plant, emissions could actually rise) or from an investment perspective: proponents of renewable energy projects need certainty about when additional capacity will be required.

Leaving it to the market also risks leaving coal communities in the lurch. There is no way of knowing where the next power station retirement will occur, fuelling speculation and anxiety. Without this certainty, it is also easier to pretend that any given power station will not close, thus weakening efforts to plan for life after coal. This ultimately hurts the community.

Environment Victoria's submission to the current Senate Inquiry into the Retirement of Coal Fired Power Stations expands on these issues.[46]

Victorian support for closure

A ReachTEL Poll[47] commissioned by Environment Victoria in June 2016 found that 70 percent of Victorians think governments need to plan the phase-out of coal plants as part of a comprehensive plan to deal with global warming. People expect responsible governments to show leadership on climate change and provide tangible support to communities.

[42] http://reneweconomy.com.au/hazelwood-closure-wont-impact-reliability-says-aemo-30390/
[43] https://theconversation.com/closing-victorias-hazelwood-power-station-is-no-threat-to-electricity-supply-66024
[44] http://www.vic.gov.au/news/victorian-renewable-energy-auction-scheme.html
[45] Assuming 4400 MW of wind, at 0.35 capacity factor, and 1000 MW of solar at 0.2 capacity factor.
[46] http://environmentvictoria.org.au/2016/11/10/submission-inquiry-retirement-coal-fired-power-stations/
[47] http://environmentvictoria.org.au/media/strong-support-phasing-out-polluting-coal-plants-victoria's-key-marginal-seats