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Could Germany's multi-stakeholder approach help move Australia out of coal-fired power?

Like Australia, Germany has had a long and polarised debate about phasing out coal-fired power stations. Germany formed a multi-stakeholder group that negotiated a consensus to phase out coal power by 2038. A similar process could help Australia navigate the trade-offs inherent in such a change.

Discussion paper

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Summary

Both Australia and Germany have had long, polarised debates on phasing out coal-fired power. This reflects the fact that the biggest barriers to a phase out are social, cultural and political ones rather than technical and economic.

In 2018 Germany set up a multi-stakeholder group, the German Coal Commission. Its mission was to deliver a plan for the phase out of coal-fired power and to meet Germany's 2030 emission reduction target.[1] The Commission comprised 28 members from government, energy businesses, the wider business community, unions, environmental groups, academia and affected regional communities.

In January 2019, after seven months of consultation and negotiation, the Commission announced a plan to transition Germany out of coal-fired power by 2038. Out of its 28 official members, 27 voted for its plan.[2] Only the representative of villages threatened by mine extensions voted against the deal, saying there were no assurances that the villages would survive.[3] Greenpeace and three other members added a dissenting opinion on the exit date, saying they were not satisfied with the late date.[4]

The plan covers two areas: energy and climate; and the workers and communities affected. For the later it includes €40 billion ($A67 billion) in investment in the affected regions ie €2.0 billion per year ($A3.4 billion). In addition, there is €5-7 billion compensation to workers for early retirement, €5-10 billion to pay power station owners for early retirement of their plant and workers can access the wider national upskilling fund.[5] The plan includes detailed regional analyses, a timeline for plant closures and a list of hundreds of potential projects for potential funding.[6] Forced redundancies will be avoided and 'employees will not suffer any unfair social or economic disadvantages'.

Germany's experience shows the strengths of multi-stakeholder groups. A diverse group is likely to arrive at a better solution than a narrow group, and the stakeholders are likely to be

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[1] Federal Ministry for Economic Affairs and Energy (2019) *Final Report: Commission on Growth, Structural Change and Employment*, https://www.bmwi.de/Redaktion/EN/Publikationen/commission-on-growth-structural-change-and-employment.html

[2] Reitzenstein and Popp (2019).

[3] Egenter and Wehrmann (2019) *German commission proposes coal exit by 2038, https://www.cleanenergywire.org/factsheets/german-commission-proposes-coal-exit-2038*

[4] Federal Ministry for Economic Affairs and Energy (2019), p119.

[5] Federal Ministry for Economic Affairs and Energy (2019). Litz (2019) *The German Coal Commission*, p44-45, https://www.agora-energiewende.de/en/publications/the-german-coal-commission/. Also discussion with Phillipp Litz of Agora Energiewende.

[6] Reitzenstein and Popp (2019).

more committed to the outcome if they have participated meaningfully in reaching that outcome.

The Coal Commission was a mechanism to negotiate the policies to end coal-fired power. This paper focusses on the successes, weaknesses and trade-offs involved in such process. It does not focus on the policies themselves in detail.

Like in Australia, the two major political parties in Germany were conflicted and long unwilling to act on phasing out coal power. However, in Germany the pressure on the Government for some meaningful action to end the status quo of community conflict was sufficient to set up the Coal Commission. This saw the Government criticised for evading responsibility for the issue, but it did result in a plan to meet Germany's climate targets, build consensus and achieve satisfactory support for regions and workers. A major reason for the Government choosing to use the Coal Commission to navigate the change is Germany's more consensus-based political system and a history of using similar multi-party mechanisms to solve issues.

There were several trade-offs the Government and the Commission had to face. An inclusive Commission or one which better reflected the Government's wishes, a detailed plan which adds certainty versus flexibility to adapt to a changing future, the freedom given to the Commission which can build consensus but may mean the Commission is less likely to come up with a plan that suits the Government.

Given the similar debate in Australia, a similar group process is worth considering. Any plan negotiated would probably still be criticised by various parties, but if consensus is built, the plan may be more enduring and offer more certainty than recent Australian climate and energy policies. A plan which is legislated without consensus being built is likely to be overturned by a change in government. The critical factor is how the inevitable trade-offs are navigated.

Introduction[7]

The barriers to deep decarbonisation are not technical and economic feasibility, instead the barriers are social, cultural and political.[8]

2021 has already seen a decline of Australian coal-fired electricity production, with power station owners writing off over $1.5 billion in the value of their coal power plants in the last six months.[9] Factors behind this are increasing renewable electricity production, a pandemic-induced reduction in electricity demand and state government plans to increase renewable energy. The Australian Energy Market Operator requires that generators give three years notice of the planned closure of their plant, however experts believe this requirement lacks teeth.[10] Sudden closure of a plant can severely impact employees and their communities, and highlights the lack of a national plan for managing the decline of coal power.

The absence of a national plan to manage the decline of coal is a consequence of Australia's highly polarised debate on the issue for over a decade. This polarisation reflects that although the debate is often presented as economic and technical, the barriers to phasing out coal-fired power are political, cultural, and social. This paper is focussed on a possible way to overcome these political, cultural and social barriers – a multi-stakeholder body. It does not focus on the climate, technical or economic issues around coal-fired power.

Like Australia, Germany has had a long-running, polarised debate. In 2018, Germany set up a multi-stakeholder group, the German Coal Commission, to deliver an agreed plan to transition out of coal-fired power stations. After seven months of consultation and negotiation, it announced a plan to transition Germany out of coal-fired power stations by

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[7] This paper benefitted from discussion with Philipp Litz of Agora Energiewende, Hauke Hermann of Öko-Institut, Rebekka Popp of E3G, Alexander Reitzenstein previously of E3G and Pau-Yu Oei of Technische Universität Berlin.

[8] Reitzenstein et al (2019) *A just transition for all or just a transition?* https://www.e3g.org/library/a-just-transition-for-all-or-just-a-transition

[9] In February 2021 AGL Energy wrote $532 million of impairments across its coal and gas plants. In Queensland in November 2020, Stanwell wrote off $720 million off the value of their coal plants (19 per cent of total assets) and CS Energy wrote off $353 million (15 per cent of total assets). AGL (2021) *Asset impairment and recognition of onerous contracts,* https://newswire.iguana2.com/af5f4d73c1a54a33/agl.asx/2A1278422/AGL_Asset_impairment_and_recognition_of_onerous_contracts
Queensland Audit Office (2020) *Energy 2020,* https://www.qao.qld.gov.au/reports-resources/reports-parliament/energy-2020

[10] Dundas (2019) *No more Hazelwoods: a proposal to ensure coal plants close in an orderly way* https://grattan.edu.au/news/no-more-hazelwoods-a-proposal-to-ensure-coal-plants-close-in-an-orderly-way/; Frontier Economics (2018*) Analysis of the Victorian power market prepared on behalf of the Victorian Liberal Party.*

2038.[11] This was a significant achievement. One commentator remarked that only a few years earlier such a plan would have been unthinkable given the polarised debate.[12]

Using multi-stakeholder groups to address issues is not new. However, it can be little more than a window dressing exercise for a Government to say it has consulted while it carries out its own agenda. This has not been the case with the recommendations of the German Coal Commission that the German Government has largely, but not entirely, followed. This reflects the Government's willingness to hand responsibility for a plan to the Coal Commission, the effort the Government put into setting up a Commission, and the effort the Commission put into producing a plan that both had widespread support and the Government could accept. A consensus had to be built on both: an acceptable transition for power station employees and regions; and a phasing out of coal-fired power. This effort at building consensus is a major feature of the Commission's work.

Rather than simply saying that 'Germany has successfully used a Coal Commission to phase out coal-fired power stations therefore Australia should do the same', this paper tries to discern the conditions that lead to the German success and compare those to Australia. There were two particularly important conditions. Firstly, phasing out coal-fired power was necessary if Germany was to meet its climate target. Secondly, Germany has used multi-stakeholder groups to transition other industries.

Recently Canada and the Czech Republic have used multi-stakeholder groups to transition out of coal power, however this focuses on the German Commission because its objectives and scope were broad and challenging, yet it has been judged generally successful.

This paper complements other work by The Australia Institute and its sister organisation, the Centre for Future Work, which focussed on the policies to successfully transition away from coal-fired power, rather than the mechanism by which these policies could be decided.[13]

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[11] Federal Ministry for Economic Affairs and Energy (2019) *Final Report: Commission on Growth, Structural Change and Employment*, https://www.bmwi.de/Redaktion/EN/Publikationen/commission-on-growth-structural-change-and-employment.html
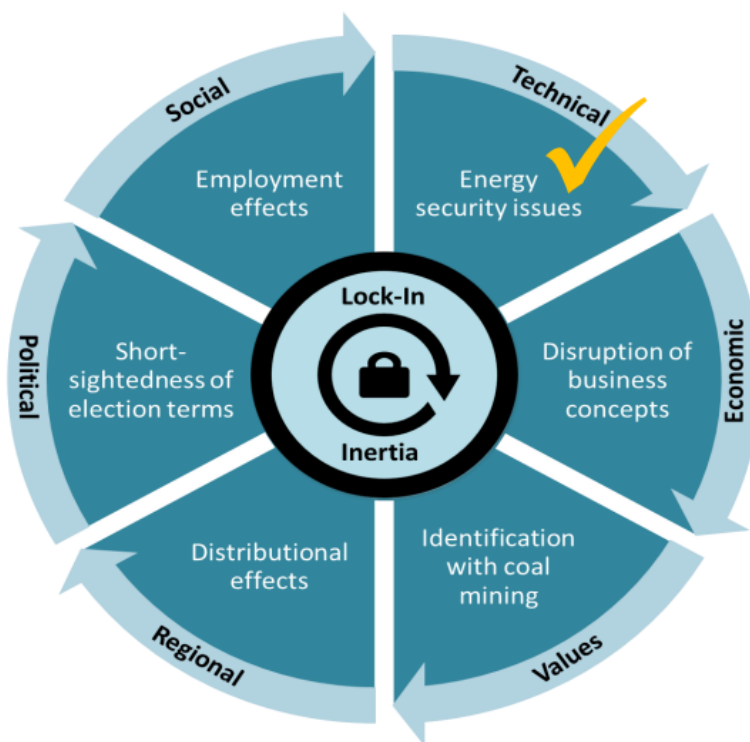
[12] Reitzenstein and Popp (2019) *The German Coal Commission – A Role Model for Transformative Change?* https://www.e3g.org/library/a-role-model-for-european-coal-phase-out-five-lessons-from-the-german-coal

[13] Stanford (2020) *Employment Aspects of the Transition from Fossil Fuels in Australia,* https://www.futurework.org.au/planning_and_supporting_transition_not_delaying_it_best_way_to_help_fo ssil_fuel_workers; Quiggin (2020) *Getting off coal,* https://australiainstitute.org.au/post/getting-off-coal-orderly-early-transition-to-minimise-impact-for-australian-economy/

Institutional lock-in and multi-stakeholder groups

From an Australian perspective, a striking aspect of the work by German researchers discussing the German Coal Commission (and Germany's industry transitions more generally) is the emphasis on overcoming the political, cultural and social barriers to a successful transition.[14] Major vested interests and political players are tied to existing industries, in this instance coal-fired power. Oei et al (2019) uses the term 'institutional lock-in' to describe these barriers.

Figure 1: Institutional lock-in

Source: Oei (2020) *Lessons learned from the German coal phase-out process since the 1950s* https://www.agora-energiewende.de/en/events/germanys-long-goodbye-from-coal/

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[14] Reitzenstein and Popp (2019). Oei et al (2019) *Lessons from Germany's hard coal mining phase-out: policies and transition from 1950 to 2018* https://www.tandfonline.com/doi/full/10.1080/14693062.2019.1688636. Litz (2019) *The German Coal Commission*, https://www.agora-energiewende.de/en/publications/the-german-coal-commission/

This emphasis on overcoming the political, cultural and social barriers is a contrast to the debate in Australia which has largely focussed on climate, technical and economic issues.

Multi-stakeholder groups are one method that can be used to overcome the political, cultural and social barriers. There is an extensive literature on multi-stakeholder groups. For instance, Wageningen University's Centre for Development Innovation has produced a 189 page on multi-stakeholder partnerships, *The MSP Guide*. [15]   The Guide lists five main reasons to use a multi-stakeholder group: consultation; learning and idea generation; joint problem solving and decision making; overcoming conflicts; and collective action. All these apply to the German Coal Commission.   The Centre notes joint decision making, conflict resolution and collective action, which is what the Coal Commission particularly aimed for, are more complex and harder to solve.[16]

The MSP Guide lists reason why multi-stakeholder groups can solve difficult problems. People expect greater democratic involvement than before. Secondly human societies are 'complex adaptive systems', increasing communication, as multi-stakeholder groups do, helps deal with this.   Thirdly, our cognitive processes are often represented as a simplified form of rational economic thinking and selfishness, but this is not how we operate. Humans are cooperative, creative, and emotional people – and they need to feel valued and respected.   These reasons are consistent with other theories. For instance, the importance of commitment - participants are more likely to agree to a solution if they have meaningfully participated in their development.   Surowiecki (2004) notes that a group that encompasses a range of views is more likely to come up with a better solution than that from a smaller limited group.   He describes this as the "wisdom of crowds" and argues that groups can make better decisions than any single member of the group if the group meets several conditions:

- there is a diverse range of opinions.

- the individuals in the group make their opinions independently.

- the group is decentralised in terms of the individuals being able to draw on their specific knowledge.

- there is a means for the individuals to form a collective decision.[17]

The MSP Guide lists the factors to be considered when designing a multi-stakeholder group. This paper discusses how these played out in the Coal Commission.

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[15] Wageningen University (2015) *The MSP Guide* http://www.mspguide.org/

[16] Wageningen University (2021) *Rationale - Why Do We Need MSP's*
  http://www.mspguide.org/topic/rationale-why-do-we-need-msps

[17] Surowiecki (2004) *The Wisdom of Crowds,* Doubleday

Coal Commission - context

Similar to Australia, the German debate about the phasing out of coal-fired power stations was polarised and saw minimal progress for a number of years. In March 2018, a new German government took power following an election. It was a 'grand coalition' between the centre right Christian Democrat/Christian Social parties and the centre left Social Democrats party. As part of the coalition agreement, the government committed to set up a Commission to propose a way forward on phasing out coal power. Both parties had been reluctant to address the issue. The reluctance stemmed from:

- Internal conflict about a coal phase out within each of the coalition parties, particularly in the Social Democrat party which has an environmental wing and an industrial/union wing.

- Concern about job losses in eastern coal states which were still suffering economically and socially from reunification. These jobs were particularly important because they were highly paid in these states where salaries are lower than the German average.

- Concern that job losses would result in a loss of support for the coalition parties and more support for the right wing/far right Alternative for Germany party, particularly in the eastern German coal states.

- The political power of the 26,000 coal miners and power station employees who enjoyed well-paid jobs and are well-organised.

- The symbolic nature of coal mining in Germany's history. Coal mining and the sacrifices of coal miners are seen as having driven Germany to become an industrial powerhouse after the destruction of World War Two.

- Concern about providing momentum to protests such as the "yellow vest" protests in neighbouring France.

Reasons prompting action were:

- On projections, Germany was falling short of meeting meet its EU and Paris agreement emissions targets (see Figure 1 below),

- Germany has a consensus oriented, corporatist political system and a successful history of using multi-stakeholder groups for industry transitions. [18] These include

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[18] An alternative term used in Germany to describe their political system is "social dialogue" reflecting the emphasis on communication.

black coal mining, which once employed half a million workers in the Ruhr Valley and closed its last mine in 2018, and the planned closure of all nuclear power stations by 2022.

Figure 1: Germany's greenhouse gas emissions, targets and projections
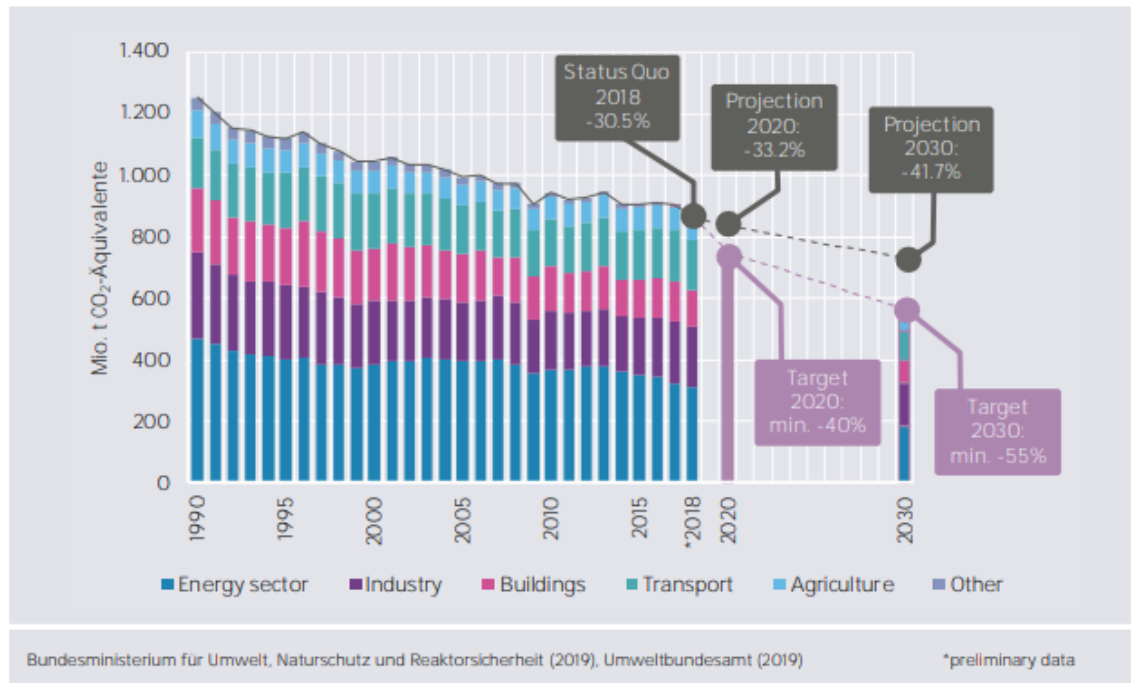
Source: Litz (2019) The German Coal Commission p11

In 2017 coal-fired power stations provided 37% of German electricity consumption, from sixteen large brown (lignite) coal power stations and 81 much smaller black (hard) coal power stations provided 19.9 GW of capacity.[19] Renewable energy provided 36% of consumption and the remainder came from nuclear, gas and other sources.[20] The brown coal power stations were the major focus of the Commission because:

- They are concentrated in areas that are economically disadvantaged compared to the rest of Germany.

- They employ some 20,000 workers. In contrast the 81 black coal power stations, employ 5,700 workers and are spread across Germany rather than concentrated in particular areas.[21] Germany ceased black coal mining in 2018 and now imports all coal for black coal power stations. This means there are no operating mines associated with Germany's black coal power stations.

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[19] Coal Commission (2018) p22, p81. Number of brown coal power stations from maps p43-48.
[20] Coal Commission (2018) p20-2. Litz (2019) p6.
[21] Coal Commission (2018) p81.

- The planned expansion of their accompanying brown coal mines threatens neighbouring villages and the famous Hambach Forest.

Comparing the Australian context

Two major factors led to the setting up the German Coal Commission. The first was the domestic and international pressure being felt by the governing parties as Germany looked likely to fail short of its emissions targets.

The second factor was phasing out coal-fired power was controversial enough that it made it attractive for the Government to cede power and 'outsource' the decision to the Coal Commission. Facilitating this was Germany's strong corporatist tradition which meant that using a multi-stakeholder group was a well-recognised and understood option. The Government's coalition agreement committed to setting up 21 new commissions to address issues including the pension system, digitalisation and climate change.

Germany's corporatist tradition is reflected in the significant role that unions play in German industry including industry-wide bargaining, works councils, union representatives on company boards and vocational education and training. Germany's consensus approach is reflected in its remarkably successful transition out of black coal mining. Major factors were advance notice, staged closures, and support for retirement and mobility. Stanford (2020) details the success:

> The industrial regions of the Ruhr and Saar valleys in Germany had long been heavily dependent on coal mining and related activities. Employment in those industries was shrinking for decades, due to new technology and competition from other fuel sources. Ownership of the mines was consolidated (with public equity participation) in 1969 in a new integrated firm, RAG Aktiengesellschaft, to facilitate planned restructuring and also promote diversification into other industries. In 1997 a 'Coal Compromise' was reached, involving the company, the federal and state governments, unions, and affected communities. The Compromise ended subsidies for coal mining and initiated the gradual close-down of the whole industry. Employment fell from 81,000 jobs in 1997 to just 2,000 when the last active mine closed. Major factors were advance notice, staged closures, and support for retirement and mobility. Most of the downsizing was accomplished through retirement of miners, supported by strong incentives for those younger than normal retirement age. Over 10,000 workers were also reassigned in the course of the phase-out to work in other locations, after their own mines closed. Strong supports were provided for retraining and redeployment to other jobs in RAG (including its growing non-mining divisions) and external firms in other industries. Germany's very strong apprenticeship and job placement system assisted.[22]

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[22] Stanford (2020) p48,

COMPARISON TO AUSTRALIA

In Australia, the Government has committed to emission reduction but, unlike Germany, has not engaged in any serious policy development to meet targets, let alone a phase out of coal power stations. The opposition Labor Party has pursued somewhat more effective policies when in government, but like Germany, both parties have internal conflicts about climate change action. The Labor Party has internal conflict between members more concerned about fossil fuel employment and those concerned about action on climate change. The coalition Government faces a broadly similar split and has lost seats to Independent/minor party MPs who support action on climate change, (Zoe Steggall, Helen Haines and Rebekha Sharkie), in what were once strong coalition electorates.

Australia does not have the strong corporatist tradition of Germany, though the COVID-19 pandemic did result in more consensus-based decision making eg National Cabinet, the ACTU and LNP Government meeting to decide policies to preserve employment.

Other differences between Australia and Germany:

- Unlike Germany, the Australian regions where coal-fired power stations are located are not severely disadvantaged compared to the rest of Australia. The Latrobe Valley comes closest. It suffered in the 1990s when Victorian electricity generation and distribution was privatised and 8,000 employees lost their jobs. In 2017, the Hazelwood Power Station, where 750 people were employed, closed suddenly.[23] (Despite this, the unemployment rate in the Latrobe Shire had fallen to 7.1% in March 2019 from 11.1% in September 2017).[24]
- The major political parties in Australia are not as threatened by right/far right populist parties as they are in Germany. In Australia, One Nation won only 3% of the House of Representatives first preference vote and 5% of the Senate vote in the 2019 federal election.[25] In the 2020 Queensland election, One Nation won 7% of the first preference vote but only one seat in the ninety-three seat parliament.[26] In

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[23] Engie (2019) *Hazelwood power station in Australia to close at the end of March 2017,* https://www.engie.com/en/journalists/press-releases/hazelwood-power-station-australia

[24] Latrobe Valley Authority (2019) *Latrobe Valley Community Report: Transitioning to a strong future,* https://lva.vic.gov.au/news/community-report-released-today/12770-DJPR-RRV-LVA-community-report_v7a-web-ready2.pdf.   There are some also some towns with coal-fired power stations that have disadvantage eg Collie and Lithgow.

[25] Australian Electoral Commission (2020) *Tally Room: 2019 Federal Election* https://results.aec.gov.au/24310/Website/HouseDefault-24310.htm

[26] Electoral Commission Queensland (2021) *2020 State General Election,* https://results.elections.qld.gov.au/state2020

Germany Alternative for Germany won over 20% of the vote and won the second largest number of votes in three eastern German state elections in 2019.

- Germany has a national electricity grid which imports and exports power between neighbouring countries. Australia as an island nation does not do this and only six of Australia's states and territories are connected to the national grid. Most Australian states and territories have their own plan to increase renewable energy production. A national plan would have to consider these. Western Australia's three coal fired power stations and electricity grid are not connected to the rest of Australia. Planning for their closure is probably the most advanced of the Australian states.[27]

- The role of coal fired power generation in building a modern Australia is readily acknowledged, however it is perhaps not as mythologised as it is in Germany where coal and the toil of coal workers are credited for enabling Germany to recover from its World War Two destruction and become an industrial powerhouse.

- Unlike Australia, Germany does not have an export thermal coal or export metallurgical coal industry. Discussions about the future for coal in Australia are often confused because different parts of the industry face different challenges. On the other hand, lessons learned from a successful phase out of coal power will prove useful for Australia's export thermal coal and metallurgical coal mines which are predicted to decline as well. This is particularly the case for NSW and Queensland coal power stations which are generally located in or near export coal mines. Success with their phase out would help the process when nearby export mines wind down.

- Coal-fired power supplies a smaller part of Germany's electricity consumption compared to Australia (37% vs 56%) and correspondingly renewable energy plays a larger role (38% vs 21%).[28]

- Germany's coal-fired power industry is larger than Australia's. It has 42GW of generation capacity and employs 26,000 people in the power stations and associated mines. Australia has 27 GW of generation capacity and employs some 8,000 to 12,000 people (see box text below).

Employment in Australian coal power stations and associated mines

Estimating employment in coal-fired power in Australia is complicated because statistics provide only employment in "fossil fuel electricity generation", listed as 8,065 in 2016. This

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[27] WA Government (2020) *Collie's Just Transition Plan* https://www.wa.gov.au/sites/default/files/2020-12/Collies%20Just%20Transition_09%20December%202020_web.pdf

[28] Department of Industry, Science, Energy and Resources (2020) *Australian Energy Update*, https://www.energy.gov.au/publications/australian-energy-update-2020   Coal Commission (2019) p20. German coal power generation has declined further since the Coal Commission's report see Figure 3 below. The Coal Commission statistics have been included here to show the situation the Commission was facing.

figure includes employees in gas-fired power stations and likely omits some relevant employment in transmission and in coal mines. Coal mining employment estimates are dominated by the export coal industry. Quiggin (2020) uses census data to estimate employment in coal-fired power stations of 5,000 people, "roughly equivalent to coal's share of electricity generation".[29]

Sheldon (2018) in a report for the Construction, Forestry , Maritime, Mining and Energy Union used various sources to estimate employment of 8,000 people in power stations or "those working in and around coal mines supplying coal to Australian generators".[30]

Stanford (2020) estimates fossil fuel-related electricity supply employment using ABS Labour Force data on total electricity employment. Assuming half of those employed in total electricity supply are related to coal and gas generation and associated transmission and administration, his estimate of employment in fossil fuel-related generation, transmission and distribution is 33,200 people. He stresses that the inclusion of transmission, distribution and administration "overstates the true extent of fossil fuel-related employment in the electricity system".[31]

Another approach is to take known regional data on employment and generation capacity and apply this nationally.

Western Australia's Collie Shire is such an area. The 2016 Census found 451 people were employed in coal mining and 188 in fossil fuel generation (a combined total of 639 people).[32] Collie's three power stations provide 1.6 GW of Australia's total coal-fired power generation capacity of 27GW. Scaling Collie's employment of 639 people across Australia's coal generation capacity amounts to total industry employment of 10,780.

In Queensland, CS Energy's Callide and Kogan Creek power stations employ 'more than 550 people' and provide 2.3GW of generation capacity.[33] Callide sources coal from an external mine. Therefore assuming total employment of 750 people (ie 200 people work in the mine that supplies Callide) and scaling this makes an estimate of 8,800 people across the industry.

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[29] Quiggin (2020) p13.

[30] Sheldon et al (2018) *The Ruhr or Appalachia,* https://www.ituc-csi.org/IMG/pdf/ruhrorappalachia_report_final.pdf p13.

[31] Stanford (2020) p9.

[32] ABS (2020) *2016 Census QuickStats: Collie,* https://www.abs.gov.au/websitedbs/D3310114.nsf/Home/2016%20QuickStats

[33] CS Energy (2020) *2020 Annual Report*, p2-2 https://www.csenergy.com.au/who-we-are/reports-and-publications/annual-reports

Victoria's Yallourn employs 500 people and provides 1.5GW of generation capacity. Scaling this up implies 9,000 people across the industry.[34]

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[34] Energy Australia (2021) *EnergyAustralia powers ahead with energy transition,* https://www.energyaustralia.com.au/about-us/media/news/energyaustralia-powers-ahead-energy-transition. The workforce increase to about 1000 for major unit outages.

Coal Commission: set up and operation

As discussed earlier, the Coal Commission was set up with a strong emphasis on building a consensus, ensuring good jobs and meeting Germany's climate targets.

As you would expect, the Commission's composition was itself the subject of intense negotiation.[35] The government faced a number of trade-offs. Firstly, on who to appoint to the commission. While it must have been tempting to 'stack' it with members who would reach a recommendation that would be easy for the government to implement, this would reduce the chance of the final plan being widely accepted. On the other hand, if the Commission was too inclusive the Commission might become unworkable. In responding to this trade-off, the federal government itself choose not to be part of the Commission, instead three coalition members of the parliament had the right to speak at the Commission but not the right to vote. Government ministries had similar rights. Litz (2019) writes that these choices aided the development of a mutually accepted package of measures.[36] Though the Commission was still criticised for not including youth representatives.[37]

In the end, the Commission included 28 voting representatives from the energy sector, brown mining regions, industry, environmental associations, trade unions, academia, and politicians. The Commission had four chair-persons. Three were high ranking "elder statesmen" of the coalition parties from the regions most affected by a coal phase-out and the fourth was a climate economist. Another Commission member was an "elder statesman" from the Greens Party from the affected regions. There were no Commission members from the right wing/far right Alternative for Germany party. There were also three federal parliamentarians who were members of the coalition parties who attended and were entitled to speak but not to vote.[38] Members worked on an honorary basis.
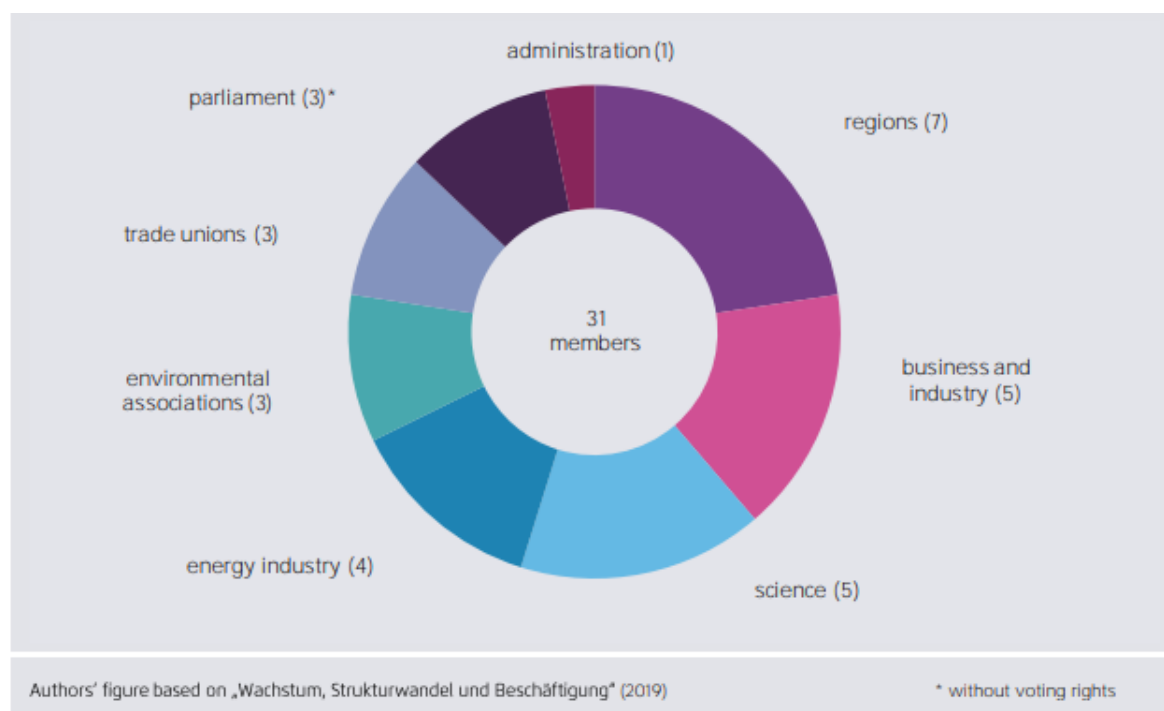
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[35] Amelang and Wehrmann (2018) *Wrangling over German coal exit talks reveals difficult task ahead,*
   https://www.cleanenergywire.org/news/wrangling-over-german-coal-exit-talks-reveals-difficult-task-ahead
[36] LItz (2019) p46.
[37] LItz (2019) p47.
[38] Wehrmann (2018) *Germany's coal exit commission,* https://www.cleanenergywire.org/factsheets/germanys-coal-exit-commission

Figure 2: German Coal Commission: composition

Authors' figure based on „Wachstum, Strukturwandel und Beschäftigung" (2019)   * without voting rights

administration (1)
parliament (3)*
trade unions (3)
environmental associations (3)
energy industry (4)
science (5)
business and industry (5)
regions (7)
31 members

Source: Litz (2019) Coal Commission p21

Although the inclusiveness of the Coal Commission enabled it to be successful, it also presented its own challenges. One of the unions represented in the Commission notes that the diversity of the Commission members meant that it took a lot of time at the beginning to create trust, "Therefore, smaller working groups were created inside the Commission. These groups wrote drafts on different pieces of the task. Based on these drafts, the Commission could then negotiate the direction of agreements and compromises."[39]

Sessions were attended by representatives from German states, eight federal ministries, and the Federal Chancellery. The Commission's work was supported by the Federal Ministry of Economics and Energy. The chair-persons of the Commission also reported regularly to the State Secretaries Committee set up for this purpose, which included representatives from the eight federal ministries concerned.[40]

Another trade-off was regarding the responsibility and freedom given to the Commission. The more freedom, the less likely it would be the Commission would create a plan that followed the government's wishes. However, the greater freedom the more likely the plan would be agreeable to a wide range of interests and the more likely that those interests would be committed to the outcome. In the end, the Commission was given considerable

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[39] Just Transition Centre (2019) *Just Transition in action: Union experiences and lessons, p5,* https://www.ituc-csi.org/IMG/pdf/191120_-_just_transition_case_studies.pdf
[40] Litz (2019) p22.

freedom to decide on a lot of issues, but this also meant it had a broad, challenging and complex task. It had to:

- create a plan that would create good, future-proof jobs in the affected regions.
- build consensus.
- ensure Germany meets it climate targets.
- set out how and when coal-fired power stations would close and ensure that the overall electricity market and economy was not unduly affected.

There are complex linkages and trade-offs between these objectives. As Reitzenstein and Popp (2019) summarise, it had to "negotiate climate ambition, its implementation and the accompanying transition measures at the same time".[41]

While the Coal Commission's task was broad and challenging, at the same time the Commission was given the freedom to decide the exit dates for coal power and was not given a budget limit. The Commission even asked for the Government for some indication of budget but was told *that it was for the Commission to decide.*[42]

The Commission was tasked with presenting a single negotiated plan rather than present a range of options. This has been criticised for not giving elected officials the decision to choose the final option.[43] However it reflects the major reason why Government gave the problem to the Commission, it wanted to avoid the controversy it would attract if it decided the issue itself. As Litz (2019) notes, the intention appears to have been for the Commission to "settle the matter" and for the Government to avoid making a decision.[44]

COMMISSION OPERATION

The Commission held ten meetings. The first meetings received expert opinion on structural change, climate change, and electricity supply. There were also visits to the three major brown coal mining states. The later meetings were negotiations to finalise report. Two working groups were established, one to work on structural change and employment, the other on energy and climate. Members could attend both working groups.[45]

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[41] Reitzenstein and Popp (2019) *The German Coal Commission – a role model for transformative change?* P6 https://www.e3g.org/docs/E3G_2019_Briefing_German_Coal_Commission.pdf

[42] Discussion with Phillip Litz of Agora Energiewende who was also an assistant to one of the Commission's co-chairmen.

[43] Litz (2019) p47.

[44] Reitzentein and Popp (2019) p9.

[45] Litz (2019) p22.

Negotiations were generally non-public. All members were asked to not share any information about the negotiations in public. However, throughout the process, leaks impacted the negotiations (from various sides).[46]

There were intense negotiations late into the night on the final days of the Commission's work. In the end, the Commission reached a consensus with 27 of its 28 members voting in favour of its plan. The representative of villages threatened by the brown coal mine extensions voted against the plan.

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[46] Correspondence with Alexander Reitzenstein, E3G (January 2020).

Coal Commission: outcome

After seven months of work and negotiations, the Commission released its final report in January 2019. Reflecting the emphasis on building consensus the first four paragraphs are devoted to: discussing the need to build consensus; the critical importance coal has played in Germany's economic success; and the need to look after the coal regions and bring them up to the economic success level of the rest of Germany. The opening paragraph of the report states that

> The Federal Government convened the Commission on Growth, Structural Change and Employment to develop a broad social consensus around structural changes to energy and climate policy in Germany. The primary focus here is on providing concrete prospects for new, future-proof jobs in the regions affected. The members of the Commission represent a broad cross-section of societal, political and economic actors. This will provide the foundation for a sustainable social consensus that all participants will be able to rely on in the years ahead.[47]

The main body of the Coal Commission's report covers 108 pages:

- Forty-eight pages are devoted to an analysis of the current situation regarding climate and emissions, energy market analysis, analysis of the current economic strengths and weaknesses four German mining states and mine expansion plans.
- Twelve pages are devoted to recommendations for the energy sector and
- Thirty-three pages are developed to the prospects for new and future-proof jobs. In addition to the main body of the report, there is a list of hundreds of projects that could be funded in the regions.

The main points of the plan are:

1. Shut down coal-fired power stations step by step by 2038.
2. Support regional modernisation and supply future jobs. There will be *no* forced redundancies and 'employees will not suffer any unfair social or economic disadvantages'. [48]
3. Modernise the power system including develop the grid further and increase storage.
4. Alleviate hardship with power price compensation, compensation for power station owners, ensure a just transition for workers and discussion with villages proposed for resettlement due to coal mine expansion.

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[47] Federal Ministry for Economic Affairs and Energy (2019), p2.
[48] Federal Ministry for Economic Affairs and Energy (2019), p9.

5. Monitor the plan throughout its life and take additional action if needed.[49]

The plan involves the current 43 GW of coal-fired power generation reducing:

- to 30 GW by 2022;
- to 17 GW by 2030; and
- totally shutting down in 2038.

There are review dates along the way where it could be decided to bring the phase-out date forward to 2035.

Litz (2019) estimates the plan's major spending commitments as:

- €40 billion ($A67 billion) in investment in the affected brown coal mining regions (an average of €2.0 billion per year ($A3.4 billion)).
- €5-7 billion compensation to fund early retirement for workers aged 58 and above.
- €5-10 billion to pay power station owners for early retirement of their plant.
- €16-32 billion to be paid between 2023 and 2038 for electricity price compensation (though declining renewable energy prices could make this significantly lower).
- €3-4 billion for cancellation of CO_2 certificates. [50]

This totals €69-93 billion over the years to 2038.

There is no planned investment in the regions where black coal power stations are located due to the smaller scale of their employment and their dispersion across Germany rather than a particular region. Their employees, like all others, can access the national upskilling fund.[51]

The large investment of €40 billion in the brown coal regions reflects a desire to counteract the factors that made the major German political parties reluctant to tackle the phase out: of Germany; the need to bring the eastern German brown coal mining states' economic development and infrastructure up to the standard of the rest of Germany; the political fear of disadvantaging them; and the obligation that Germany feels it owes the coal industry for its economic success. Another critical factor was that there was no member of the Commission with a brief to argue that the investment was too high.

The Commission recommends a competitive bidding process to shut down black coal fired-power stations. For brown coal power stations, the Commission recommends the phase out be negotiated between the government and the operators (there are only two).

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[49] Litz (2019) p24.

[50] Federal Ministry for Economic Affairs and Energy (2019). Litz (2019) *The German Coal Commission*, p44-45, https://www.agora-energiewende.de/en/publications/the-german-coal-commission/. Also, discussion with Phillip Litz of Agora Energiewende.

[51] Discussion with Phillip Litz of Agora Energiewende.

It is recommended that the €40 billion investment recommended for the coal regions be invested in:

- Improved transport connections, including rail and road.
- Improved telecommunications networks.
- Strengthened vocational and higher education.
- Developing and improving research centres in the regions.
- Moving 5000 federal public servants into the area.
- Making the regions pilot projects for investments that the federal government is rolling out across Germany for instance 5G mobile networks.[52]

Extensive consideration is given to appropriate industry clusters that could be developed in each for the regions building on the economic strengths of the regions and particularly the expertise and infrastructure used in the coal-fired power industry. For instance in the Lausitz region where there are 8000 people employed in brown coal power it is recommended that the following industry clusters be developed.

- Energy cluster including renewable energy, making use of the energy sector existing research development expertise, existing sites and transmission lines.
- Mobility cluster becoming a model region for ecological and modern mobility including energy storage, innovative propulsion development of lightweight and high-tech materials.
- Bio economy and resource efficiency cluster developing new basic materials for pharmaceutical and chemistry industry, regenerative medicine, agriculture and food production.
- Healthcare and tourism cluster. Making use of the existing university medical faculty, training nursing staff, developing tourism based on health and wellness.
- Artificial Intelligence cluster. Linking in with the other clusters, relocating spin-offs from Dresden University and led by the University.[53]

The plan notes the importance of equalising living conditions across Germany.[54] It recommends legal agreements between the federal government and states to provide certainty of funding.[55] The commission strongly emphasises the importance of planning and starting to make the investments "without any delay" so that the reduction in coal-fired power generation can be continued.[56] It similarly emphasises the importance of "firm commitments" from politicians and long lead times before closures so that businesses and employees can work to prepare for the transition.[57] The importance of collective

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[52] Coal Commission (2018) Chapter 4.

[53] Coal Commission (2019) p75-76

[54] Coal Commission (2019) p82.

[55] Coal Commission (2019) p83.

[56] Coal Commission (2019) p97.

[57] Coal Commission (2019) p97-98.

agreements and the involvement of unions in negotiating an appropriate transition for employees is noted.[58]

A common theme in successful industry transitions are co-ordinating authorities for each region and the Commission similarly recommends this.[59] Once again the Commission recommends that these institutions be made up of representatives from a range of stakeholders and experts and that "these institutions start work as soon as possible" and "implementation must begin immediately" to offset the phasing out of mining.[60]

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[58] Coal Commission (2019) p98.

[59] Sheldon et al (2018). Coal Commission (2019) p103.

[60] Coal Commission (2019) p104.

Consensus and beyond

As noted earlier, the Coal Commission's recommendations were well received. Litz (2019) and Reitzenstein and Popp (2019) both note the importance of the external environment in achieving consensus. Apart from Germany's more consensual political culture, other factors were the likely failure of Germany to meet its 2030 climate targets and that the owners of coal-fired power plants had been under increasing economic pressure due to the expansion of renewables and rising CO_2 prices.[61] Support for the phase out increased further when Germany experienced a very hot summer in 2018 that increased concern about climate change.[62] (The Australian 2019/20 bushfire season has similarly increased concern about climate change in Australia.)

A German commentator noted anonymously that 27 of the 28 Commission members accepted the plan because most of the groups got something they wanted. The lack of a limit on spending helped. Regions got significant funding, workers got significant funding, power station owners got compensation though the economics of their plants were declining. Four Commission members with an environmental background expressed dissent with the late 2038 exit date but still endorsed the Commission's report because it was a significant step forward compared to the status quo.

The Commission negotiated simultaneously a plan for both: the workers and communities affected; and energy and climate. This made its task challenging but the emphasis on, and inclusion of representatives of the workers and communities affected, was crucial to the plan's acceptance.[63] Germany's emphasis on the workers and communities is instructive for Australia where discussions about phasing out coal power often focus on the workers and communities involved as an afterthought. The Commission efforts to build consensus mean that the Government did largely, but not entirely follow its recommendations (see below).

The acceptance of the Coal Commission's recommendations by the German Government and by the wider community contrasts with Australia where recent plans for the electricity sector have been neither adopted by the Government, nor enjoyed community support. For example, the 2017 Finkel Review recommendation for a Clean Energy Target was dumped in 2017 and then Energy Minister Josh Frydenberg's National Energy Guarantee met a similar fate in 2018. Although governments can change, Germany's effort at consensus means that a new government is less likely to overturn the Commission's recommendations. As such it provides increased certainty which encourage business investment.

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[61] Litz (2019) p46.

[62] Discussion with Alexander Reitzenstein of E3G.

[63] Reitzenstein and Popp (2019) and Litz (2019).

In July 2020, the German Government passed a structural change law that set out the support for the coal regions as coal power is phased out and a coal phase-out law which regulates the path of coal power phase-outs. The structural change law largely follows the Commission's recommendations. The coal phase-out law contains the most significant deviation from the Coal Commission which recommended a steady decline in emissions. Instead the coal phase-out law states that while coal capacities do decline continuously overall, the phase-outs of the more polluting brown coal plants are delayed and occur in three large waves in the early 2020s, late 2020s and 2038.[64] The German Economy Minister Peter Altmaier said the Government had decided to tread carefully during the early coal exit stages because Germany also plans to close all nuclear plants by 2022.[65]

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[64] Wehrmann and Wettengel (2019) *Implementing Germany's coal exit proposal – the road ahead,* https://www.cleanenergywire.org/factsheets/implementing-germanys-coal-exit-proposal-road-ahead

[65] Wehrmann (2020) *Former coal commission members say German government breached landmark exit compromise,* https://www.cleanenergywire.org/news/former-coal-commission-members-say-german-government-breached-landmark-exit-compromise

Trade-offs and Criticism

The two years that have passed since the Commission finalised its report have highlighted the trade-offs involved in using a multi-stakeholder group like the Commission and also in setting out a plan for the future.

The Commission's plans aim to meet Germany's current climate targets, but critics argue that these are not sufficient to meet the objectives of the Paris Agreement, which itself includes a mechanism for the 'ratcheting up' of targets.[66] This criticism is valid but also somewhat misdirected as it was the government that gave the Commission its objective of meeting Germany's climate target, the Commission did not choose it. This criticism also highlights the trade-off between a detailed plan which adds certainty and encourages investment versus the flexibility to deal with unexpected challenges.

The detail versus flexibility trade-off was further highlighted in 2020 when German coal-fired electricity production dropped dramatically due to the pandemic, along with lower gas prices and a record amount of electricity generated from renewable sources (see Figure 3). In turn this has led to increased criticism of the compensation to be given to brown coal power station owners.[67] The adoption by the European Union of its European Green Deal has also increased criticism of the Coal Commission's plan for not being ambitious enough.[68]
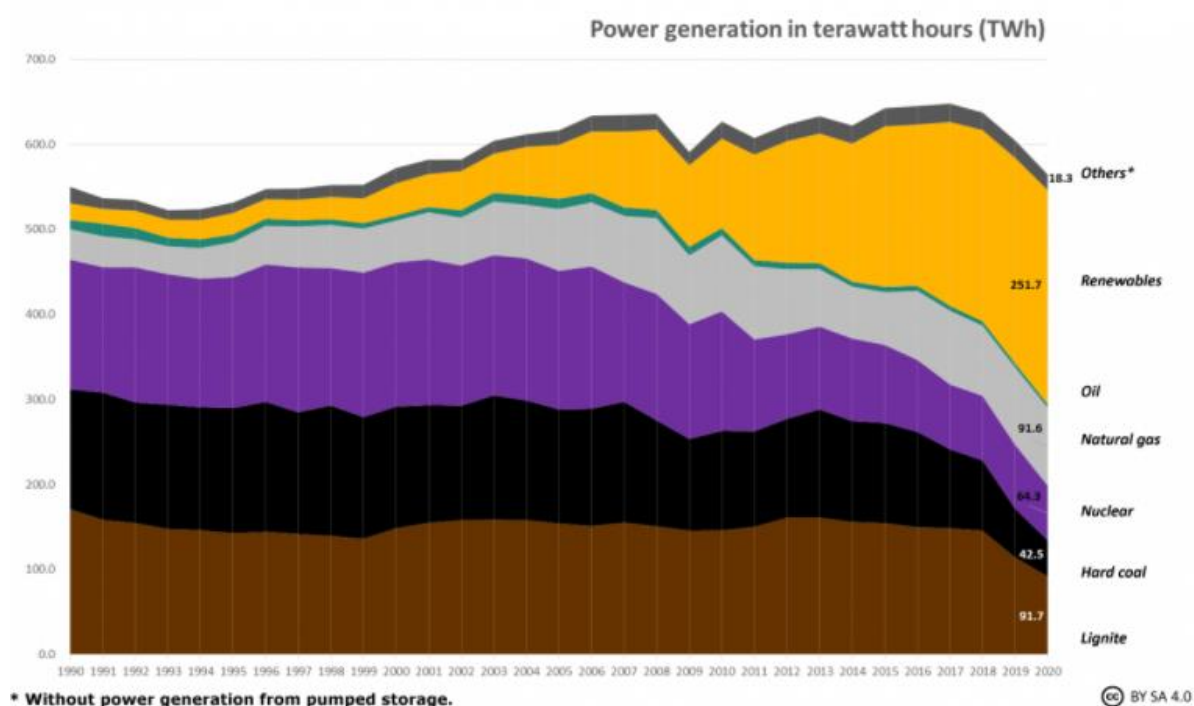
Perhaps a better approach to the trade-off between certainty and future flexibility has been taken with the closure of Germany's black coal power stations. These are based on reverse auctions which take place *over time* to better address changing conditions, as opposed to the Commission-negotiated payments set for the brown coal power stations.

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[66] Heilmand and Popp (2020) *How (not) to phase out coal* p3. https://www.e3g.org/publications/how-not-to-phase-out-coal/

[67] Hermann (2020) *An assessment of the draft legislation of the "Coal Phase-out law" as well as an outlook on its implications for the German power sector* https://www.agora-energiewende.de/en/events/germanys-long-goodbye-from-coal/

[68] Wettengel (2020) *Germany must step up climate ambitions for EU Green Deal – govt advisors,* https://www.cleanenergywire.org/news/germany-must-step-climate-ambitions-eu-green-deal-govt-advisors

Figure 3: German power production 1990 – 2020: by source

Power generation in terawatt hours (TWh)

Others* 18.3
Renewables 251.7
Oil
Natural gas 91.6
Nuclear 64.3
Hard coal 42.5
Lignite 91.7

* Without power generation from pumped storage.

(cc) BY SA 4.0

Source: Clean Energy Wire (2020) Germany's energy consumption and power mix in charts
https://www.cleanenergywire.org/factsheets/germanys-energy-consumption-and-power-mix-charts

Researchers have stated that given how quickly the economics of coal power have declined, it is likely that coal will be priced out of the market by 2030.[69] However, if investment in the regions and in new jobs is still based on the 2038 exit date, some of it will be too late if power stations close earlier. This once again highlights the trade-off between a detailed plan and one that is flexible to deal with the future.

Another trade-off is between a detailed plan and one that leaves 'gaps' for the government to fill in. Instead of the steady decline in emissions envisaged by the Coal Commission, the Government's implemented coal phase out law delays the phase-outs of the more polluting brown coal plants and they instead occur in three large waves in the early 2020s, late 2020s and 2038. This actions also highlights that a multi-stakeholder group can only go so far in setting out a plan. Strong incumbent players can still use their power to influence the government after a plan has been decided upon.

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[69] Though Germany has a 'dark lull' in winter when sun and wind are not plentiful where it is harder to replace coal power with renewable power. Walker (2017) *What happens with German renewables in the dead of winter?* https://www.dw.com/en/what-happens-with-german-renewables-in-the-dead-of-winter/a-37462540

Building consensus also has a downside. However the consensus built around the 2038 exit date means that even though the German Greens Party has a policy of exiting coal power by 2030, it has not been advocating that policy strongly.[70]

The Commission's plan involves a very large investment. Litz (2019) estimates that its total costs at between €69-93 billion, of which €40 billion is for the affected regions. This corresponds to €3.6-4.9 billion per year or 1.0% to 1.4% of the annual federal budget.[71] This partly reflects the burden placed on the commission of not only having to compensate for the phase-out of coal-fired power stations but also having to 'right past wrongs' in terms of lifting the economic performance of eastern German states. It also reflects the fact that no Commission member had a particular brief to limit the recommended investment and the German Government did not set a limit on spending.[72] Reitzenstein and Popp (2019) note the large expense sets a bad precedent for other countries hoping to phase out coal power.[73] The compensation for power stations owner has been criticised as unnecessary.[74]

The Commission proposed a phase-out schedule for coal-fired power stations rather than setting a price for carbon which some argue would have been more economically efficient and would not have involved such large compensation payments for plant operators. Litz (2019) notes however that the phase out plan results in a more certain economic environment which leads to better planning for the transition and more investment. Carbon pricing would have resulted in higher prices for consumers which would have required compensation. Litz (2019) also states that a phase-out plan delivers more certainty for employees and makes emission reductions more specific and binding.[75]

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[70] Conversation with Rebekka Popp.

[71] Litz (2019) p44.

[72] Discussion with Alexander Reitzenstein, January 2020.

[73] Reitzenstein and Popp (2019).

[74] Litz (2019) p47.

[75] LItz (2019) p48.

Conclusion

The 19th century German statesman, Otto von Bismarck, is reported to have said, 'Laws are like sausages. It is best not to see them being made'. There were certainly elements of this in the Coal Commission's work. Trade-offs had to be made and the members of the Commission and the Commission's recommendations were the subject of intense negotiations. Regardless, the Commission's plan was a major achievement in helping meet Germany's climate targets, building consensus and achieving satisfactory support for regions and workers. This highlighted the advantages that multi-stakeholder groups can provide. Diverse participants can provide a better solution than one provided by a limited group and because stakeholders have meaningfully participated in the process they develop a commitment to the outcome.

Events since the Commission reported highlighted the trade-offs, particularly those involved in setting forward a plan when the future changes. Nevertheless, the Commission's work has acted as a circuit breaker. It changed the conversation in Germany from being about *if* coal power will end to *when* it will end. In doing so it has put Germany in a better place to deal with future challenges.

Given the lack of a clear plan for Australia to exit from coal power, the Coal Commission's approach has merit. However, it is not a cure-all. Much depends on how the trade-offs involved in such an approach are navigated.