An Chomhairle Náisiúnta Eacnamaíoch agus Shóisialta
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NESC

Four Case Studies on Just Transition:

Lessons for Ireland

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Sinéad Mercier

Table of Contents

List of Figures

List of Boxes

Acknowledgements

Chapter 1
Introduction and Methodology

Just transition is a new and emerging topic. It should be kept in mind that we are examining transitions in progress, and that there are no ready-made templates of successful, completed, transitions to a zero-carbon economy. There is a wealth of literature on internationally agreed foundational principles, but few examples of transitions in practice and no example of a region that has completed its transition to an entirely non-fossil-fuel-based system. Most country-level examples of transition also focus overtly on regional transitions away from coal-based employment. The Scottish Just Transition Commission appears to be the only current example of an economy-wide transition being put into practice. Momentum, however, is building in global support for such an 'all economy' approach, as evidenced by increasing international discourse on a 'Green New Deal'.[1]

This lack of practical templates is an opportunity for Ireland to lead on an internationally regarded example of just transition in the Midlands. As other countries begin their transitions, Ireland can serve as an international example of a proactive, inclusive and place-based just transition to an economy that operates within environmental and social limits.

An analysis of transitions away from fossil-fuel-based regional employment in Australia's Latrobe Valley, Scotland's Just Transition Commission and Germany's Ruhr Valley and *Lausitz*/Lusatia finds that an inclusive, iterative, place-based, context-specific approach enabled by public investment provides the best outcomes, including the creation of low-carbon employment alternatives.

The term 'just transition' is used throughout this project to mean a transition approach that focuses on securing and creating decent work and quality jobs as we move to a low-carbon economy. This is in line with the supporting principles on just transition outlined by the International Labour Organization (ILO, 2015; UNFCCC 2016; OECD, 2017; Botta, 2018), based on the preamble of the Paris Agreement which requires signatory countries to reduce their emissions while:

'[t]aking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities' (UNFCCC, 2015).

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[1] The US-based Green New Deal programme and its followers in the EU and Northern Ireland enjoys popular support from the climate-change school strikers in particular. Discussion is still at principle level rather than implementation in any country (Friedman, 2019).

From an analysis of the four case studies, the following 11 lessons have been identified:

1. Transitions are complex and take time.

2. There is no readily available template, recipe or off-the-shelf approach that Ireland can simply adopt as an ideal approach to transition; however, there are general fundamental lessons from what worked well in other countries.

3. Context and past experiences of transition can shape a region's response to, and experience of, transition.

4. Preparation is required for a just transition, whether it be led by government, regional or local/community-based actors, and followed up with government support.

5. Social dialogue is an effective, if not fundamental, mechanism for fostering trust and adopting a problem solving approach to transition. It fosters shared understanding, enables the exchange of difficult facts (scale of plant closures, for example), supports delivery and encourages a problem-solving approach.

6. New institutional structures for social dialogue established by government, with overarching targets and goals, can create momentum and maintain discipline. However, how you seek to achieve them needs to be flexible and based on what works and what is needed under a learning and recursive approach to transition.

7. An inclusive, place-based approach is necessary, with an overall focus on regional development rather than just directly affected workers and companies.

8. Uncovering, valuing and cultivating the existing skills and capacities of a region can assist in sustainably developing a region and creating long-term, high-quality employment.

9. Skills audits are very useful in transitioning a region, but these may work best alongside a coordinating and economic planning role for the state, such as government investment in alternatives, as well as regional initiatives to use the information provided.

10. State investment in supportive alternative infrastructure is a key driver of a positive transition.

11. Personnel restructuring processes in companies, such as early retirement and internal retraining, negotiated between companies and trade unions and brokered by government, can lead to an orderly phase-out for workers, although balance is required alongside the community and environmental interest.

Methodology

This background paper provides an analysis of international evidence on the implementation of just transition principles in practice. The key points were summarised in the primary paper, *Addressing Employment Vulnerability as Part of a Just Transition in Ireland* (Council Report no.149).

This background paper provides instructive cases of transitions from fossil-fuel-based employment to a more diversified regional economy, examined here to reveal generalisable lessons for any such strategy in Ireland.

In assessing the case studies to unearth lessons for Ireland, one analytical framework was loosely applied. Under that framework, each case-study example was examined, giving particular attention to the following topics and their importance to each transition:

1. Institutional structures in place (political, economic and social context)

2. Historical background (social, economic and environmental history of the area)

3. The scale of the transition envisaged

4. The role of government

5. The role of local authorities

6. The role of different actors (businesses, trade unions, local communities, NGOs)

7. Skills (structures to collect data on skill-sets, encourage enterprise)

8. Resources and investment (was EU, state or private funding leveraged?)

9. Presence of key actors or interventions (key events that shifted debate)

10. Assessment of success and key lessons for Ireland

In choosing the relevant case studies, the following approach was taken. First, desk-based research was conducted on existing policy approaches and practices for a just transition. Major examples of transitions away from fossil-fuel based employment were explored in an analysis of foundational literature (ILO, 2015: 2018; Galgóczi, 2014), the UN Framework Convention on Climate Change (UNFCCC, 2016) and the Organisation for Economic Co-operation and Development (OECD, 2017; Botta, 2018).[2] In these papers, the transition of Germany's coal and steel-reliant Ruhr

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[2] In most literature on just transition, the primary case studies outlined are the social partnership approach of Germany's Ruhr Valley to phase out hard coal mining (Galgóczi, 2014; Galgóczi, 2019; Brauers *et al.,* 2018; Oei *et al.,* 2019; Sheldon *et al.,* 2018; DIW Berlin *et al.,* 2019; Campbell and Coenen, 2017), the German Coal Commission's phase-out of coal-fired generation and lignite mining (Reitzenstein & Popp, 2019; DIW Berlin *et al.,* 2019; European Parliament, 2018), the – almost universally criticised – management of coal-mine closures in the UK (Fothergill, 2017; Emden & Murphy, 2019; Beatty *et al.,* 2019; Foden *et al.,* 2014), the ongoing transition of Appalachia in the US (Sheldon *et al.,* 2018; Abraham, 2017) and Canada's Just Transition Taskforce in Alberta (Harrahill & Douglas, 2019; Powering Past Coal Alliance, 2016).

Valley to high-quality employment in a lower-carbon, knowledge-based economy, was consistently highlighted as a positive example of a just transition. Germany's Commission on Growth, Structural Change and Employment (the 'Coal-Exit Commission') and its impact on the region of Lusatia (Lausitz in German) was chosen to complement this case study as it is an ongoing implementation of the just transition approach used in the Ruhr (Reitzenstien & Popp, 2017; Agora Energiewende, 2019). The Coal-Exit Commission facilitated the decision to entirely phase out coal-fired energy generation and lignite mining in Germany.

Other ongoing examples of just transition were also examined, leading to a preliminary choice of Spain's *Plan del Carbón*, which was highlighted internationally as a 'best practice' example (IndustriALL, 2018; ETUC, 2018) and Scotland's Just Transition Commission. Scotland was chosen as the commission is dealing with the transition of the entire economy, while most 'best practice' case studies mentioned in the international literature above deal almost entirely with coal. Prior contacts in Scotland had also been established with key stakeholders by NESC and the researcher.

After the case study of Germany's Ruhr Valley, and preliminary research on the Coal Exit Commission and Lusatia was presented to NESC's Transition Teams Working Group, there was a request for case studies with smaller populations and similar institutional frameworks to Ireland. For that reason, the latter two case studies focused on Australia's Latrobe Valley, and Scotland's Just Transition Commission. Australia's Latrobe Valley was chosen due to its similar population size to the Midlands; the wealth of research on the region with a sustainability and climate lens (see work by Weller, Snell, Tomaney & Somerville, 2010; Wiseman *et al.,* 2017; Della Bosca & Gillespie, 2018; Chubb, 2014; Baker, 2010), and the continuous research conducted in the region since its establishment as a primary energy supplier to the state of Victoria from the 1920s (Birrell, 2001; Wright *et al.,* 2015; Duffy & Whyte, 2017; Duffy *et al.,* 2017; McLaren, 1957).

The case studies that were finally chosen were Germany's two transitions in the Ruhr Valley and Lusatia, Australia's Latrobe Valley and Scotland's Just Transition Commission.

Contact was made with key academics and research institutes following the transition in each region. Lists of key stakeholders in each case were developed by extrapolating from key literature and through engaging with stakeholders on a rolling basis. Due to technical difficulties, there was a lack of interviews with German stakeholders; however, the wealth of desk-based research available on the German examples, from a range of different perspectives, outweighed the lack of interviews.

Chapter 1
Lessons

1.1   Lesson One:

Transitions are complex and take time.

1.1.1   Long-term, secure funding of a transition approach may be necessary

It has taken 60 years of permanent structural change in the Ruhr Valley to fundamentally transition the area from a mono-industrial coal and steel-reliant region to a knowledge and service-based economy (ILO, 2018: 7). High-tech manufacturing and well-paid, highly skilled services have developed in a region of 5.4 million inhabitants that, until 1962, had no university (Galgóczi, 2014: 225). However, unemployment is still double the German average, at 10 per cent. The final hard coal mines only closed in December 2018 after a process that began in the mid-1950s, when coal and steel provided 70 per cent of the region's employment (Sheldon *et al.,* 2018: 28).

The closure of the final coal-fired plants and the phase-out of brown coal/lignite is recommended for 2038, according to Germany's Coal-Exit Commission, with structural support for regions required for decades afterwards (BMWi, 2019: 62-64).

In Australia, the Latrobe Valley is a region that has undergone extensive change and restructuring over the past 20 years. Success is still questioned (Whittaker, 2019; Whittaker, 2019a) and further impacts are yet to come from the closure of the region's remaining coal-power stations, Yallourn and Loy Yang A and B (Whittaker, 2019c). The process of starting the conversation about the need for an alternative basis for the regional economy is gaining momentum due to the pollution and health impacts of a 45-day fire caused in the Hazelwood mine in 2014 (Doig, 2015; Voices of the Valley, 2016; Yacono, 2019; Yacono *et al.,* 2019).

The Longannet Taskforce set up to cope with the closure of Scotland's last coal-fired power station in Fife demanded significant time and investment from the civil servants and stakeholders involved over its three-and-a-half-year time-frame (Fife Council, 2019) from August 2015 to May 2018 (Just Transition Commission, 2019e: 1-2).

It is clear then that transitions take time. Funding, institutions and/or programmes tasked with managing such transitions thus need to be long-term. The Emscher Park IBA (International Building Exhibition) (see Box 2) gained from trial and error by the state government of North Rhine-Westphalia (NRW), which had been attempting to transition the Ruhr region from the 1950s to the 1980s (Galgóczi*, 2015*: 238). The

Emscher Park IBA was granted a 10-year operating period from 1989 to 1999 (Kilper & Wood, 1995: 218). A 10-year operating period also applies to the Mining Area Enterprise (Unternehmen Revier) regional assistance programme, which has been requested to extend beyond 10 years by the Coal-Exit Commission (BMWi, 2019: 100) (see Box 3). The Latrobe Valley Authority has been granted a four-year time-frame by the Victoria government (Cain, 2019: 7) (see Box 4) and, as stated above, the Longannet Taskforce took almost four years, with regional development still in progress (Fife Council, 2019).

1.2   Lesson Two

There is no readily available template, recipe or off-the-shelf approach that Ireland can simply adopt as an ideal approach to transition, although there are general fundamental lessons to be learnt from what worked well in other countries.

1.2.1   Complex nature of transitions

Transitions are complex (Ellis *et al.,* 2019, 4); many mistakes can be made even with the best of intentions and the best of international best practice to hand. What works well in one region can backfire in another. Due to the complex nature of transitions, a long-term, place-based and multi-pronged policy approach may be best suited to the task. This approach is best founded on an iterative and innovative learning process, informed by constant monitoring through inclusive social dialogue and thus changes flexibly to suit regional needs. This is discussed further in Lesson 5 below.

1.2.2   A just transition framework

A just transition framework can assist in building an integrated and comprehensive climate-action policy approach in a complex situation of transition.

Despite its still quite open and contested meanings, a just transition framework has been found useful by key stakeholders in the three later case studies as an overarching policy aim in times of transition. In the Australian literature on the closure of Hazelwood power station, environmental groups tended to state that the reason for lack of closure was 'changed political circumstances' that 'gave Hazelwood a lifeline to keep operating' (Environment Victoria, 2017: 1). However, a closer analysis reveals that the backlash from affected communities was due to the demand for closures being unaccompanied by long-term job-retention or creation plans for a community with past negative experiences of restructuring (Chubb, 2014: 23). For example, emissions trading and carbon pricing introduced under the 2011 Clean Energy Futures Package by the Gillard government is suggested to have resulted in a major swing vote for the Conservative Party and an entrenchment of regional support for coal as the social impacts on coal-reliant regions were not fully engaged with (Weller, 2012: 1270; Weller, 2019: 302; Weller *et al.,* 2011; Tomaney & Somerville, 2010: 39). It became difficult for local businesses and others to talk about diverse alternatives for the region beyond coal (Tomaney & Somerville, 2010: 39).

Chubb (2014: 62-67) and Wiseman *et al.* (2017) note that support for a low-carbon transition could have been gained in Latrobe Valley if a structural adjustment package had been developed:

> In this context, there were opportunities for the government to forge alliances and win over at least some sections of the Valley community, if only they had engaged (Ibid. 15).

After the Hazelwood fire in 2014, and particularly after the UNFCCC Paris Agreement in 2016, trade unions, environmental groups and community organisations used the policy aim of a just transition to create a common basis for campaigns, and to broaden and improve climate-action policy (Snell, 2018: 556). This has led to greater success in opening up discussions on renewable alternatives for the region (Voices of the Valley, 2019; VTHC [Victoria Trades Hall Council], 2019).

In Scotland, participants in the Just Transition Commission state that the commission is giving a policy space to interactions and intersections that previously went unnoticed. For trade unions and the oil and gas industry (OGTC [Oil and Gas Technology Centre], 2019; STUC, 2019a; Jamieson, 2019), the large investment in renewables in Scotland is not resulting in the high numbers of low-carbon jobs that were predicted in numerous studies[3] (STUC, 2019: 2). This is despite transferable skills (Scottish Enterprise, 2017; 2016; Arup, 2017) and the need for transition alternatives in the oil and gas industry as it suffers lower job quality (Silver, 2018a) and job losses from automation (WEF, 2017: 14), the 2014 downturn and resource depletion (AEPP, 2018: 73). For environmental organisations, the framework enables them to point out how Scotland's positive climate record is at odds with its continued support for 'maximising the recovery of oil and gas' resources (FOE Scotland, 2019).

1.3   Lesson Three

Context and past experiences of transition can shape a region's response to, and experience of, transition.

Badly handled restructurings of regional economies leave deep scars, a community in decline and distrust of new attempts at restructuring. Communities generally do not willingly choose to transition unless a better or similar alternative is provided, alongside ownership and control over their future. For such regions, emissions reductions are best tackled alongside the improvement of socio-economic prospects.

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[3]   For example, the Scottish government's Low Carbon Economic Strategy (2010) and the 2020 Routemap for Renewable Energy in Scotland (2011) predicted, respectively, 130,000 jobs by 2020 and 40,000 jobs in renewables by 2020. Official figures for 2017 show that there are only 21,400 direct full-time equivalent (FTE) jobs in the low-carbon economy, a fall from 23,900 in 2016. See STUC, 2019: 2-3.

Stakeholders who understand the context and experiences of a region are necessary to deliberations on transition policy. This generally means honest, transparent dealings with an affected community, integrating their concerns and allowing them to develop their own solutions to the problems that face them. Process, delivered by trusted local institutions, organisations and people, can be as important as major financial support.

It is important to recognise and celebrate the past but how you do this can vary and should reflect the community's perspective. A heritage or museum approach is not necessarily the best approach; ensuring the continued viability of a community may be the best way of recognising past endeavours.

1.3.1   Understanding the concerns and context

Understanding the concerns and context of a community facing transition creates a rounded response that is more likely to become embedded in local mobilisations.

In lignite-mining areas in Germany, talk of another transition raises fears of a repeat of past restructurings. The dramatic and sudden integration of East Germany into the West was a difficult transition for many East Germans (The Economist, 2019). Work in lignite mining was a source of pride (Morton & Müller, 2016: 5) as this ensured energy security for East Germany. However, reunification in 1989 meant greater competition with higher productivity levels in West Germany. This led to a 90 per cent drop in employment within 10 years (Schwartzkopff & Schulz, 2015: 14).

West Germany undertook a major financial support programme to assist East Germany's integration, but East Germans still feel that they 'are not taken seriously' and are considered less valuable than Germans in the West (The Economist, 2019). Germany's lignite regions also received nearly €14bn in support from 2013-2018 (CLEW, 2018).

This shows that large financial support may not be enough; the matter is more complex and requires a long process of deliberation, care and trust on both sides. How communities respond to decisions by outsiders on their community's future can be summed up in the words of protestors in the Rhenish lignite mining district, during the final discussions of the Coal-Exit Commission (Wettengel & Appunn, 2018):

- 'We will not allow ourselves to be made the victim of those who make big promises in climate policy, but let others pay the bill.' – mining union IG BCE head Michael Vassiliadis.

- 'The most important thing is that we can keep our jobs – this is what we are worried about. Where our energy actually comes from is less important.' – protester to Deutsche Welle.

- '[P]eople in the coal regions mustn't get the impression that those in power are taking away their jobs and future.' – Brandenburg state premier Dietmar Woidke, SPD (Social Democratic Party of Germany).

As noted above, these feelings of fear can be integrated opportunistically into the rhetoric of bad-faith actors, as has happened with the rise of the far-right vote and their use of 'climate denialism' in the Ruhr and lignite mining regions (Staudenmaier, 2017; The Economist, 2019).

Political representatives from lignite regions criticised the draft proposals of the Coal-Exit Commission 'for focusing too much on emissions reduction and too little on the economic prospects of people living in mining regions' (CLEW, 2018a). These criticisms were publicised in November 2018 during the sittings of the Coal-Exit Commission. On publication of the Coal-Exit Commission's consensus report the German federal government drafted legislation, '*Strukturstärkungsgesetz Kohleregionen*', to deliver major financial support for structural adjustment in affected regions as a matter of priority. This financial support is to be delivered through local 'trusted institutions' (BMWi, 2019: 103). No plant closures or further climate targets will occur until this legislation is passed and the funding delivery in process. This is a deliberate trust-building exercise and display of commitment to the affected regions (Wehrmann & Wettengel, 2020). This prioritisation of structural adjustment support before further targets or closures led to regional governments in eastern coal-mining states welcoming the commission's final proposals, which commit €40bn to regional development (Wettengel, 2019; Schulz, 2019).

In Australia's Latrobe Valley, 'trust-building' is noted by its CEO, Karen Cain, as a key part of the Latrobe Valley Authority's organising principles, which take a place-based and iterative approach to regional development (discussed further in Lesson Seven and Box 4) characterised by institutional learning and institutional reflexivity (Cooke, 1995b: 245). This approach aims to build a secure, trusting relationship, after a series of negative experiences due to privatisation in the region (Birrell, 2001; Doig*, 2015*: 51), the neglect of the state and local fossil-fuel companies that led to the Hazelwood fire (Alcorn, 2014; Doig*,* 2015) and the short-notice closure of the Hazelwood power plant and mine (Latrobe Valley Authority, 2019c). The context is outlined by Duffy and Whyte (2017) in their interviews with local people after the Hazelwood fire in 2014:

> We just keep being lied to over and over and over. That's where the trauma came in an absolute feeling of abandonment. It didn't matter if we lived or died, we were expendable, seems to be that's still the case' (Ibid. 434).

> The community. They've seen what privatisation has done to the community and they're terrified what happens when you shut down these places. So if you've got a positive, let's create something that's really important' (Ibid. 439).

1.3.2 Framing

Where possible, transitions are best framed by respect and acknowledgement for what went before, i.e. honouring and thanking fossil-fuel workers and their communities.

This statement highlights one of the criticisms of just transition policy, which can raise questions as to why supports are needed for fossil-fuel-heavy industry, but not for other industry?[4] The answer proposed in this paper is that regions that have been deliberately established or instigated by the state to become reliant on one industry require targeted support and an intersectional approach to planning transition. All the case studies show examples of populations encouraged to reside and work in a particular area by the state in order to develop a particular resource for the public good.

Resource-reliant regions such as the Ruhr, Lusatia, Fife and Latrobe Valley contributed to the economic development and energy security of whole countries. Latrobe Valley, for example, was the first site of Victoria's state-owned energy company, the State Electricity Management Commission (SECV). It was established in 1920 with the mandate to manage Victorian electricity generation and supply. The state government of Victoria encouraged communities to move to the area, with public housing, infrastructure, schools, and high wages and good conditions (Duffy & Whyte, 2017: 424; Wiseman *et al.*, 2017: 11-12).

In the words of Cooke (1995a: 16), these regions were net contributors to the state with a proud heritage, until – often suddenly – they became 'recipients of a "begging bowl" form of support' in the form of subsidies or social welfare transfers.

In Latrobe Valley, the early discourse of climate action and transition did not incorporate a major analysis of local cultural heritage or the previous negative transition (Baker, 2010: 45). Duffy and Whyte (2017) record the frustrations of Hazelwood workers and their community as they described being the first to experience the industry's ill-effects in the form of dangerous work conditions or polluted air (Ibid. 434), the sudden fall in the status of mining and electricity generation (Ibid. 435), and the lack of assistance in developing alternatives in the region:

> We need to create jobs that we can move to, rather than away from. We're moving away from Hazelwood but there's a tunnel there, it's a dark tunnel that we don't know where we're going to. So we've got to give people hope that they've got something to move to (Ibid. 438).

The Longannet Taskforce is an example of a transition approach that recognised local pride and identity. The closure of Longannet power station was considered the 'end of an era' in Scotland's contribution to the creation of the UK's Industrial Revolution (Silver, 2018). There was pride among the local community and workers for their role in the Industrial Revolution and Scottish prosperity, but also a lasting

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[4] The various debates within academia and policy were helpfully outlined by Dr Raphael Heffron; see Heffron, 2019.

memory of how the community was 'left to fend for themselves' when it came to the closure of the coal mines and ship-building yards in the 1980s under what was seen as a Westminster-led government policy of undermining unionised workforces (Silver, 2018).

The Taskforce and the Scottish government both had a stated aim of recognising that the region had contributed to the economic development of Scotland as a whole, and that past restructurings had damaged the region (Longannet Taskforce, 2017: 5; Fife Council, 2019). In doing this, and by supporting the community even though funding came short of what was asked for by the local council, the taskforce improved on past experiences (Just Transition Commission, 2019e).

1.3.3   Approach

A heritage or museum approach can recognise and celebrate the past but how you do this can vary and should reflect the community's perspective. The continued viability of a community may be the best way of recognising past endeavours.

One means used to respect the process of transition has been an acknowledgement of the contribution made by a community to the history or development of the country, through memorials, museums and public events. In the Ruhr valley, a decision was made in the 1980s to preserve the 'most beautiful coal mine in the world', the Zollverein coal-mine industrial complex in Essen, NRW as the site of the Ruhr museum (UNESCO, 2018). The complex was added as a UNESCO World Heritage Site in 2001 and Essen was a European Capital of Culture in 2010 (Thim, 2019). A series of state and federal events were held in December 2018 to celebrate the history of hard coal-mining in the Ruhr (Steinmeier, 2018).

In Latrobe Valley, memorials and museums are not sought after to the same extent (Voices of the Valley, 2019; VTHC, 2019). The former coal-fired Morwell Power Station was added to the heritage protection list by the Heritage Council of Victoria (Vorrath, 2018) after a community-led campaign (Doig, 2015: 68-110). Instead, practical action to rejuvenate the area and reuse of the site as a renewable energy hub or otherwise appears to be welcomed more as the way forward (Vorrath, 2018; Voices of the Valley, 2019; VTHC, 2019). This appears to be for reasons of the past experience of privatisation, the company's later controversial involvement in the Hazelwood fire and a desire to see the area become viable and liveable into the future (Voices of the Valley, 2019; VTHC, 2019).

1.4   Lesson Four

Preparation is required for a just transition, whether it be led by government, regional or local/community-based actors, and followed up with government support.

A proactive approach is preferred before market forces begin to operate as, left unattended to, results may not be structurally fair or conducive to a safe climate, as evidenced in Australia and Scotland. If a proactive approach is not taken, a reactive

evidence-based alternative package can be prepared for when damaging circumstances arise.

1.4.1   Proactive responses

In Germany, a relatively proactive approach was taken to respond to pressures on the hard and lignite coal industries. In the Ruhr, structural decline, major layoffs and subsequent protests in the 1950s led to the federal government taking action to transition the area, in close cooperation with social partners: the regional government, municipalities, employers and trade unions. However, this institutional cooperation also led to a 'lock-in' situation that benefited vested interests for almost two decades from the mid-1960s to the 1980s (Galcógzi, 2014: 224), 'leading to persistent attempts to modernize the old structures of the Ruhr area instead of turning to new economic possibilities' (Oei *et al.,* 2019: 7). This lock-in occurred due to blocks on the sale of land, the lack of universities or higher-education institutions in the region and the lost ability of 'innovative dynamism' due to the region's mono-structure of coal, steel and accompanying specialised suppliers (Morris & Plake, 1995: 78; Galgóczi*,* 2015: 11).

From the late 1980s to the 1990s, a breakthrough occurred in innovation (Galgóczi*,* 2015: 226). Proactive responses in the 1980s were taken by coal and steel firms such as the RAG, Thyssen and Krupp companies to diversify into plant engineering, environmental technology and control services (Rehfeld, 1999: 99; Cooke, 1995: 17; Galgóczi*,* 2015: 13). This transitioned their existing workers and provided apprenticeship programmes in new industries (Cooke, 1995: 18).

In 1984, NRW changed its industrial policy to focus on environmental technology and acted to develop the region as a prime example of how innovation could be developed for old industrial regions. This was exemplified in the Emscher Park IBA, and the subsequently inspired Mining Area Enterprise (Unternehmen Revier) programme. These initiatives have been recommended as regional development mechanisms by the Coal-Exit Commission for development of the lignite regions (BMWi, 2019: 100) (see Box 2 and Box 3).

In 2018, the German federal government set up the Coal-Exit Commission, which would allow for consensus on the complete phase-out of coal under a target set by government. It was recognised that long-term support from government was required in the Ruhr and would be required in Lusatia and other affected regions (BMWi, 2018: 4; 103).

In 2018, the Just Transition Commission was established by the Scottish Government for a two-year period 2019-2021 to provide independent advice to Scottish ministers on the long-term strategic opportunities and challenges relating to the transition to a 'net zero-carbon' economy by 2045 and in the context of Scotland's Economic Strategy. The commission is expected to complete its work by early 2021 (Scottish Government, 2018).

1.4.2   Reactive responses

If a reactive approach is taken, the Scottish Longannet Taskforce and Hazelwood Power Station studies show that a dialogue approach with representatives from all stakeholder groups, businesses, workers and the community can lead to greater employment outcomes and a feeling of local ownership and control over the future of the region. Participation of those worst affected in energy or regional decision-making leads to trust in the process and better evidence-based outcomes. This reactive approach is best taken as close as possible to the site affected.

The Australian example shows that just transition plans can be developed in the absence of proactive federal or regional government leadership. This can be achieved through preparation and forward planning by other stakeholders, as long as it is later coupled with a reactive and supportive regional government alongside significant funding (Wiseman *et al.,* 2017: 6-8).

Regarding the closure of Hazelwood power station, Snell (2018: 559) attributes the positive A$266m response package and structural adjustment supports from the Victoria Government outcome (compared to other power station closures in Australia and past experience of privatisation) to the organising of trade unions in the region. This includes the organising of monthly Climate Change Forums that invited local businesses, community groups, local government and unions to discuss green alternatives for the region (Ibid, 2018: 554). Wiseman *et al.* (2018: 8) attribute the positive package and response to environmental and trade union groups working together to build just transition scenarios and demands into campaigns for the closure of the Hazelwood power plant. Sally Weller (2019: 312), Wendy Farmer (Voices of the Valley, 2019) and Karen Cain (Latrobe Valley Authority, 2019c) see the gap as being filled by the preparation of local community groups, businesses, trade unions and experts who worked together to assess the region, explore its weaknesses and strengths and build alternatives over time. Unfortunately, at times these community groups had to work against government regional bodies developed to transition the region (Weller, 2019: 311-312).

1.5   Lesson Five

Social dialogue is an effective, if not fundamental, mechanism for fostering trust and adopting a problem-solving approach to transition. It fosters shared understanding, enables the exchange of difficult facts (scale of plant closures, for example), supports delivery and encourages problem-solving.

Social dialogue was present in all case studies; this took different forms, whether in planning to transition, or in forming a response to the initial 'shock'. In all cases there were specific phase-out timetables, field plans or a concentrated issue such as a plant closure, with accompanying regional development issues such as high unemployment and socio-economic decline.

1.5.1   Government-led, or brokered, social dialogue

The transition of the Ruhr is typified by the fact that – at an early stage and with municipal governments, employers and unions – federal and state governments collaboratively led, coordinated and funded the planning and implementation of structural change.

Social partnership is a long-standing feature of the German economy. Germany's industrial transition of the Ruhr Valley, going from 390,000 coal jobs in the 1960s to a complete phase-out of all hard coal-mining in December 2018, has been praised for 'a bottom-up approach, and the critical role of co-determination with equal voices for workers and employers at the table' (Rosemberg, 2017: 8). Unions and collective agreements are generally given a prominent role in socio-economic policy-making; co-determination of employees under *Montan-Mitbestimmung* (parity co-determination) is a feature of Rhenish capitalism (Galgóczi, 2014: 234).

Due to the involvement of key stakeholders, a broad approach was taken to benefit the region as a whole, rather than an *ad hoc* minimalist approach that would provide only redundancies and welfare. A constant and ongoing social dialogue to manage a socially acceptable phase-out of subsidies alongside labour downsizing was institutionalised through the Kohlerunde (coal roundtables in 1987, 1993 and 2007). These roundtables were negotiated between the coal and steel industry and trade unions, and brokered by the federal and state governments.

This approach ensured the delivery of policies designed to deliver high-wage, high-skills industries and jobs, maintenance of mine employees' employment through the transition, and substantial compensation for those induced to leave the labour market. Avenues were provided for workplace consultation, upward feedback and pressure; skills audits were conducted, and retraining supports provided by all stakeholders in collaboration with regional universities and municipalities.

However, as noted above, this institutional co-operation can become coercive, and lead to a 'lock-in' of vested interests (Galcogzi, 2014: 224). A means of breaking through this, however, was again government-led, with the shift of NRW state policy towards environmental technology and building the capacity and leadership of local authorities through initiatives such as the Emscher Park IBA (Kilper & Wood, 1995: 216; Rehfeld, 1995: 98; Botta *et al.,* 2018: 37). This was an interesting trust-building exercise as effectively control over the region's future was handed to those that had largely been the reason for the region's lock-in (Kilper and Wood, 1995: 216). The difference was the focus on an open experimental learning process that embraced and included all actors in the region, brokered by government (Ibid. 216; see Box 2). This new process, and focus on local authorities, also provided an avenue for community and environmental input, which was not as present in previous policies and Kohlerunde (Kilper & Wood, 1995: 221).

1.5.2   Regional social dialogue

In Latrobe Valley, there was a lack of hands-on federal government involvement in the transition, and local institutional lock-in of reliance on a coal economy (Wiseman *et al.,* 2017: 23, 35). Similar to the Ruhr, a break in this lock-in was attempted through the reterritorialisation of regional development strategies

(Weller, 2017: 386). Through the Latrobe Valley Transition Committee, the federal and Victoria state governments redrew local boundaries to create a new regional development construct, Greater Latrobe, which included the more rural, affluent areas of Gippsland. This strategy failed, however, due to lack of legitimacy, local involvement (Latrobe City Council and elected politicians had no role in the committee) and lack of dedicated resources (see Box 1; Zin & Fitzsimons, 2014: 49; Weller, 2017: 387; Weller, 2019: 304).

Regional stakeholder dialogue engaged in by the Gillard government was minimal in the development of the climate-action proposals under the 2011 Clean Energy Futures Package (Chubb, 2014: 23; Weller, 2019: 302; Tomaney & Somerville, 2010: 38). The closure of Hazelwood power station was a private business decision due to economic reasons by French multinational ENGIE, and a public climate campaign by Environment Victoria also had an impact (ENGIE, 2016; Morton, 2016; Wiseman *et al*, 2017: 19). Rumours of a closure spread months ahead of the official announcement in November 2016, and a staged closure was expected. The announcement of complete closure with only five months' notice came as a shock to workers, local community and government as no prior discussions had been held (Snell, 2018: 556; Wiseman *et al.,* 2017: 5). However, at regional and local levels, dialogue had been occurring to prepare the region:

> … '[t]he years of work discussing and preparing for industrial change by local unions and the local community ahead of this announcement… meant unions, the GTLC [Gippsland Trades and Labour Council], and the state government were fairly well positioned to develop a response (Snell, 2018: 556).

Numerous proposals had been developed for the region, gaining ground in 2010-2012 as the Clean Energy Package was being debated (see Appendix: Case Study 2, 94-95). However, these proposals and community voices had previously been sidelined in government responses to the region's difficulties. As Weller (2019: 311) points out in her discussion of the Latrobe Valley's predecessor, the Latrobe Valley Transition Commission:

> When locals complained that the visioning consultations did not call on their expertise, they perceived an exercise that actively devalued their knowledge of the industrial area's history and its contemporary challenges. Thus, the visioning intensified local anxieties and feelings of helplessness (Weller, 2019: 311).

This statement exemplifies the need to move past the view of the fossil-fuel worker and their communities as victims, but instead to give them agency in the decisions made on the regions in which they live and contribute to.

In 2014, a 45-day fire in the Hazelwood mine sparked a serious initiative to build community capacity in decision-making and to coordinate stakeholders in the region to take action (Weller 2019: 318; Doig, 2015; Voices of the Valley, 2019). Under Voices of the Valley, the local community prepared a campaign to educate and organise themselves on, first, protecting the health of the community, and second, lobbying for an inquiry. This capacity-building then buoyed the community in making preparations for alternatives to the polluting industries in the region, culminating in reports such as the *Jobs and Hope in the Latrobe Valley: One Way*

Forward (2016) and the awareness-raising documentary *Our Power: Reconnecting Our Communities* (Yacono *et al.,* 2019). Community groups, trade unions, local businesses, environmental groups and regional/local government bodies began to consult each other more regularly when preparing advocacy (Voices of the Valley, 2019).

Reactive social dialogue was then engaged in by the Victoria Government, who discussed with regional stakeholders what was needed for the Latrobe Valley after the closure (Snell, 2018: 557). It responded with a A$266m structural adjustment package and the establishment of the Latrobe Valley Authority, an example of ongoing and iterative social dialogue process at place-based level (discussed further in Lesson Seven and Box 4) (Ibid. 557).

As in the Ruhr, however, social dialogue is not a silver bullet for regions heavily reliant on one industry, with little experience of self-directed innovation. Coal is still dominant in the Latrobe Valley, with licences being extended for existing mines Yallourn and Loy Yang to 2051 and 2065 respectively despite climate commitments of net zero by 2050 (Victoria Government, 2018). A 'clean coal' power station is supported by the Liberal-National coalition at federal level (Alcorn & Bowell, 2018); thus the primary focus of Latrobe City Council in its 2016 *Strength-Led Transition* vision document remains 'a new [coal] power station', which 'would create long term sustainable jobs, provide a future for our young people and hope for the community' (Latrobe City Council, 2016).

The direction of dialogue in such circumstances, where one industry dominates discussions of future development, may be assisted by overarching leadership on a goal or target, i.e. the Scottish Just Transition Commission and the German Coal Commission, or specific policy change, such as the NRW shift towards 'sunrise technologies' in the Ruhr.

1.6   Lesson Six

1.6.1   New institutional structures

New institutional structures for social dialogue established by government, with overarching targets and goals, can create momentum and maintain discipline. However, attempts to achieve such structures should be flexible and based on what works and what is needed under a learning and recursive approach to transition.

New structures that facilitate social dialogue and public participation on a particular climate target or industry phase-out, such as the German Coal-Exit Commission and the Scottish Just Transition Commission, were useful in their respective contexts. The exchange of ideas and concerns across varied groups not only helps build consensus for structural change, and better understanding of what that change might be, but also resilience and social mobilisation in affected areas. Within these structures, an honest and inclusive discussion of transition impacts, a strong quality alternative jobs focus, and immediate assistance to workers facing transition may also assist in easing the transition.

Box 1:   Learning from past experience: Latrobe Valley Transition Committee

One initiative that has had a lasting impact on the new approach of the federal government and Victoria state to Latrobe Valley, is the Latrobe Valley Transition Committee (LVTC).

The LVTC was a multilevel committee established after the passing of the Clean Energy Futures Package in 2011 through a memorandum of understanding (MOU) between the federal and Victorian governments (Zin & Fitzsimons, 2014: 6). It was established as an alternative to an interventionist taskforce approach proposed in 2010 by the Latrobe City Council to manage a thorough rebuilding of the local economy to specialise in low-emissions industries (Latrobe City Council, 2010).

The LVTC included representatives from the state and federal regional development agencies, managers from the three local government areas in wider Gippsland, representatives of the Gippsland committee of RDA, and selected local stakeholders (managers of local service providers, unions and businesses). Stakeholders did not include elected politicians, coal and electricity industry representatives, representatives from government industry, energy, or infrastructure departments, environmental activists, community representatives, non-government advocacy groups (Weller 2019: 308; Ibid. 392; Zin & Fitzsimons, 2014: 43, 45).

The LVTC's objective was to identify the challenges and opportunities facing the region's economy; set a clear, long-term direction for industry development and employment growth, and outline processes to support coordinated planning and investment between levels of government, regional institutions and businesses. From 2012 the LVTC became more focused on community development.

However, the LVTC was a committee, not a taskforce, and so had no delegated powers and no access to financial resources (Weller, 2017: 389). Its role was restricted to providing advice to the responsible authority, which was Victoria's regional development agency. Funding under the Clean Energy Futures Package was only to be released in the event of coal-fired power station closures, and then they were directed at remediation not future-proofing (Weller, 2019: 310).

Initially, the committee's deliberations ran in parallel to separate, federally managed CEF Contract-for-Closure negotiations, conducted in private meetings between federal government delegates and energy firms (Ibid. 308).

The LVTC was also focused on the wider Gippsland region, which was relatively affluent compared to Latrobe Valley, risking too broad an approach to development that was not focused on the region's specific difficulties (Zin & Fitzsimons, 2014: 49; Weller, 2017: 387, 391). Policy was formed in Melbourne using global best-practice indicators, rather than local knowledge. Latrobe City Council was not central to its performance (Weller, 2017: 389).

The LVTC was not well received and was distrusted by Latrobe Valley residents (Ibid. 393) and there was controversy over the lack of state and federal follow-through for funding (Zin & Fitzsimons, 2014: 63-65). It fell into disuse after funding for the LVTC's proposals were redirected in 2012 on the closure of the Australian automotive industry (Weller, 2019: 309).

The German Coal-Exit Commission secured consensus on the phasing-out of lignite by 2035-2038, despite significant job transfer requirements and fossil-fuel resources remaining. Leaving such fossil-fuel resources unused will contribute to keeping global heating to below 1.5°C, though more efforts are needed as discussed below in Section 2.11.5 (Muttitt *et al.,* 2016: 12; IPCCC, 2018). In order to meet such climate targets, the commission developed proposals in a consensual manner, under a timeframe set by government – the *Climate Action Plan 2050* (BMU, 2016) framework, which requires total decarbonisation of Germany's energy sector in the next 35 years (Agora Energiewende, 2018: 12). The commission had to complete its work between June 2018 and January 2019. Among its 31 members, a wide range of stakeholders were represented including political representatives from lignite mining regions, scientists, the energy sector, coal and energy trade unions and ecological associations such as Greenpeace and BUND. The commission was originally to go beyond the phase-out of coal to looking at how the entire German economy could be restructured away from fossil fuels (BMU, 2016: 8). The format may instead be reused for achieving specific targets in the sectors of transport and built environment (Appunn & Wettengel, 2019; BMU, 2016: 8). In the words of Baudisch and Fouquet (2019: 46):

> [The Commission] is setting the pace for a general economic policy rather than a sector specific policy for just part of the electricity equation in Germany. The German Energiewende clearly is a societal restructuring for the German economy.

Public support in the transition appears to have been increased by the Coal-Exit Commission, potentially due to its intermediary status consisting of multiple stakeholders from a range of backgrounds (Grieshaber, 2019). However, there are still protests. The trade union movement has strongly opposed and sometimes effectively blocked the closure of coal power plants and mines because these workplaces are strongly unionised (over 80 per cent union members) and their 20,000 workers have high wages and good conditions. By contrast, jobs in renewable energy in Germany, while much more numerous (over 330,000), do not have the same high levels of pay or quality conditions as the fossil-fuel sector – an issue that is also prevalent in the US (Irfan, 2019)[5] and in Ireland (Kane, 2017: 4). German unions that support the transition have responded with calls for collective bargaining arrangements in renewable industries to secure high-quality jobs and pay (Heilmann, 2018).

With the Just Transition Commission in Scotland, the phase-out of oil and gas and the transition of workers in that industry, as opposed to the former focus on coal, are now tentatively entering policy discussions, with the 4th meeting of the Just Transition Commission (Just Transition Commission, 2019h).

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[5]   In the US only 3 per cent of solar PV workers (US Department of Energy, 2017: 38) and 4 per cent of wind energy workers (Ibid. 39) are unionised. This compares to 9 per cent of coal-fired power generation workers (Ibid. 41) and 14 per cent of gas-fired power generation workers (Ibid. 43). In energy efficiency, however, the rate is 14 per cent (Ibid. 67).

However, as in Germany, concerns have arisen due to lower pay and conditions in the renewables sector (STUC, 2019: 8, 19; FOE Scotland, 2019; OGTC, 2019). This is leading to the reluctance of workers, the oil and gas industry, and local authorities to transition to the low-carbon economy (STUC, 2019a; OGTC, 2019). This reluctance comes even though fossil-fuel skills are transferable to the offshore wind (Scottish Enterprise, 2017; Scottish Enterprise, 2016; Muttitt *et al.*, 2019: 42) and the heat, energy and water industries (Arup, 2017). Oil and gas conditions (Silver, 2018a) and employment are also set to decline into the future with automation (WEF, 2017: 14), depletion of resources (AEPP, 2018: 73) and climate targets (Muttitt *et al*., 2019: 54).

1.7   Lesson Seven

An inclusive, place-based approach is necessary, with an overall focus on regional development, not just the directly affected workers and companies.

Regional autonomy and iterative dialogue mechanisms, backed by state financial and logistical support, are beneficial. Due to the complex nature of transitions, a place-based approach founded on an iterative and constant learning process, informed by monitoring and inclusive social dialogue, may be best suited to the task. Features of such an approach are discussed below.

1.7.1   Long-term place-based institutions

As stated above in Lesson One, transitions are complex and take time. Therefore, regional development programmes also need to be long-term and based in the area for the long haul so as to be able to build trusting relationships and to engage in 'learning by learning' (Stiglitz in Cooke, 1999b: 244). Such regional bodies with government funding that are founded on a place-based public participation approach need not have major funding but can deliver bespoke supportive projects to affected regions.

In Germany, the Coal Exit-Commission has recommended that institutions that implement the transition be trusted institutions, familiar with local circumstances, based in the affected regions and therefore embodying the political will to promote successful structural development. They should remain in the region for the duration of the task, i.e. for decades (BMWi, 2019: 103). The Emscher Park IBA was granted a 10-year operating period from 1989 to 1999 (Kilper & Wood, 1995: 218) (see Box 2). The Mining Area Enterprise programme (Unternehmen Revier) under the existing 'Entrepreneurial Regions' innovation initiative was launched in November 2017, with €4m annually for ten years, targeted on the four main lignite regions, and coordinated by the Federal Ministry for Economic Affairs and Energy (BMWi) (see Box 3). Each region has developed an investment strategy, and will allocate funds via competitive calls for new ideas (see Dahlbeck & Gärtner, 2019: 51).

In Latrobe Valley, the LVA is based in the region for the next four years, and its work is likely to be extended (Latrobe Valley Authority, 2019c) (see Box 4).

1.7.2   Place-based learning through social dialogue

In Latrobe Valley, the successes and failures of past transition policy have been integrated into new approaches. Further monitoring, iterative learning and social dialogue with local people based on respect and recognition has also allowed a flexible approach to what works and is needed (Latrobe Valley Authority, 2019c). In order to address the socio-economic decline that followed privatisation of state-owned energy companies in the 1990s, many different forms of regional development were practised in the Latrobe Valley. Different approaches failed or succeeded and were monitored over time, evidenced in the wealth of reports and studies conducted on the Latrobe Valley before the Hazelwood closure. They number at least 15 (see Appendix: Case Study 2, 94-95). This monitoring by academics, as well as the experiences of trade unions and the local community, was included in decision-making after the Hazelwood closure, and the learnings were used to develop the new approach of the Victoria state government and the Latrobe Valley Authority.

In Germany, the Lausitz Future Workshop (Zukunftswerkstatt Lausitz) aims to develop consistent guiding principles for development in Lusatia by 2020 together with experts, business companies, associations, scientists, trade unions and representatives of the civil society in the region. This will inform the work of the Mining Area Enterprise Programme (Unternehmen Revier) as part of the structural assistance programmes planned under the Coal-Exit Commission (BMWi, 2019: 100; footnote at 76).

1.7.3   Multi-pronged policy approach

As can be seen in the diagram of the LVA's work in Figure 1 there are six broad policy themes and approx. 30 projects, funds or institutions. The LVA is not simply a body that provides funding and a couple of headline projects. Multiple strands of policy work and multiple actors are involved to deliver economic and social development.

1.7.4   Iterative and innovative learning processes

An open process of experimentation and learning is a key and deliberate feature of the LVA. The Emscher Park IBA also gained from the learnings of the NRW government, which had been attempting to transition the Ruhr region from the 1950s to 1980s (Kilper & Wood, 1995: 218) (see Box 2). These learnings are now being applied to the Mining Area Enterprise Programme (Unternehmen Revier) (BMWi, 2019: 100) and the Lausitz Future Workshop (Zukunftswerkstatt Lausitz) (Ibid. 100 and footnote at 76) (see Box 3).

1.7.5   High regional and local autonomy

The Longannet Taskforce, the Scottish Just Transition Commission and action by the Victoria government in setting up the Latrobe Valley Authority are examples of regional leadership where just transition strategies are absent at higher levels. High regional and local autonomy in Germany for municipalities and regional governments, coupled with significant financing, was a key factor in building the Ruhr's response. However, more room could have been made for 'bottom up' or community input at an earlier stage in the Ruhr (Galgóczi, 2015: 228). This involvement was later improved upon with the German programmes mentioned above. In the absence of support from overarching government, such as in Australia and the UK, high involvement from regional or local government is particularly important.

Figure 1:   Work of the Latrobe Valley Authority
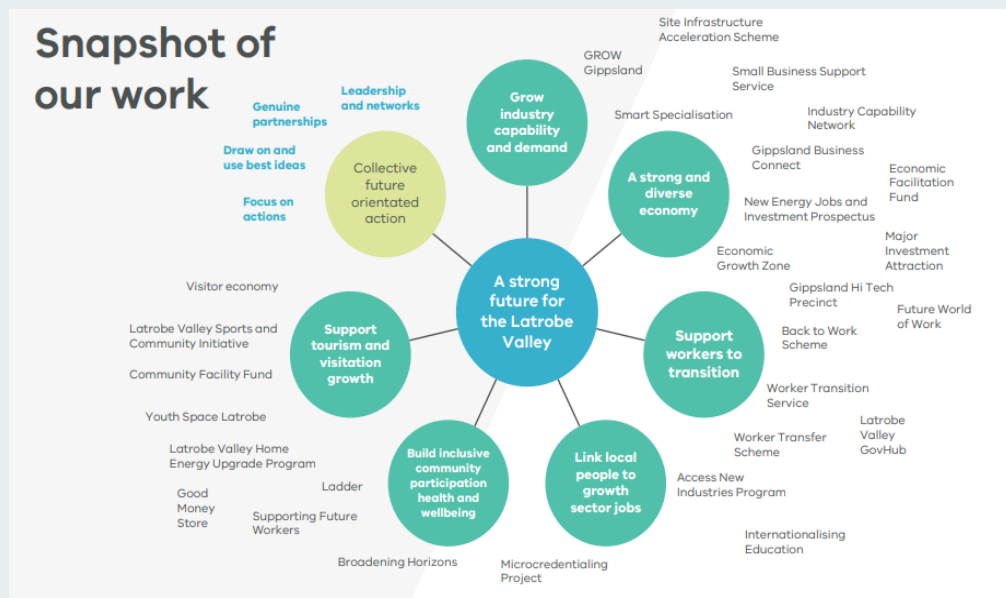
Source: Cain, 2019

1.8   Lesson Eight

1.8.1   Uncovering, valuing and cultivating

Uncovering, valuing and cultivating the existing skills and capacities of a region can assist in sustainably developing the region and creating long-term high-quality employment.

Due to the general profile of resource-dependent regions and the age and employment seniority of fossil-fuel workers, those working in power stations and mining 'tend to have fewer and narrower formally recognised skills, and lower levels of formal education' (Sheldon *et al.,* 2018: 56). These regions generally do not have access to high educational standards (for example, the Ruhr lacked a university until 1962). This leads to greater risk of retrenchment, and the region is thus less attractive to new information-based industries that can bring similarly highly paid and high-quality jobs.

In the Ruhr, it was realised at an early stage that the region's high wages and tradition of worker co-determination might scare off outside investment (Davies, 1995: 142; Cooke, 1995b: 236). A conscious decision was made by NRW, in cooperation with the social partners, to preserve highly skilled and highly paid employment by building up regional capacities and abilities in order to secure a niche in the increasingly globalised economy (Ibid. 236). This led to the creation by government of new universities in the region, as well as technological institutes.

However, heavy state involvement and social dialogue on future planning was not enough to create alternatives for the region. A 'lock-in' of vested interests and inability to innovate remained under the 'classical' modernisation approach taken where the state would 'effect structural change by means of a comprehensive and integrated procedure' (Kilper & Wood, 1998: 211). A breakthrough was achieved from the mid-1980s when the NRW government created instruments for the first time to strengthen regional developments focused on 'sunrise technologies' (Botta *et al.,* 2018: 37) and to institutionalise a more open learning process of change led by local government and actors (Kilper & Wood, 1995: 216). Planned as future-oriented initiatives, these place-based approaches included *Zukunftsinitiative Montanregion* (ZIM) (Future initiative coal and steel regions) to the Future Initiative for the Regions of North Rhine-Westphalia (ZIN) and the IBA (Kilper & Wood, 1995: 211; Galgóczi, 2014: 228). In these initiatives, NRW developed broad, state-level guidance in long-term planning, but design and implementation was directed at the local level by local actors (see Box 2).

Box 2:   The Emscher Park International Building Exhibition (IBA): 'Workshop for the Future of Old Industrial Areas'

The Emscher subdistrict is based on the Emscher River which flows through the 'middle layer' of the industrial core of the Ruhr Valley (Kilper & Wood, 1995: 208). It is an area of roughly 880m², inhabited by 5 million people. The Emscher River was considered the country's most polluted, characterised by vacant factories, closed mines, abandoned docks and air and water degradation (Campbell & Coenen, 2017: 10). Iron, steel and hard coal industry dominated the economic, environmental and socio-cultural identity of the region, with other industries being almost completely absent (Kilper & Wood, 1995: 208).

International Building Exhibitions (IBA) are a special German format of urban and regional development (see Internationale Bauausstellungen, 2019). The IBA was a public–private initiative in operation from 1989 to 1999, established by the Ministry of Urban Development, Housing and Transport for the State of NRW as 'an answer to the complex economic, social and ecological problems of the Emscher sub-region and secondly, an attempt to give an internationally recognized example of state-led economic, social and ecological restructuring of old industrial areas' (Danielzyk & Wood, 1993: 133; Kilper & Wood, 1995: 212). With this second aim, the IBA self-consciously situated itself to be a leading international example of how European industrial regions can benefit from transition. This adaptation was to be achieved 'by the comprehensive, long-term cooperation of government, business and professional organisations' (Kilper & Wood, 1995: 212).

In May 1988, the state government of NRW staged the IBA exhibition, calling on towns, companies, architects, citizen pressure groups and others to make project proposals for the restructuring of the area. These proposals were based on five themes developed by the NRW state government in collaboration with local stakeholders: the creation of Emscher Landscape Park, ecological regeneration, new uses for industrial buildings and monuments, development of new work locations in derelict industrial sites, and developing new and innovative housing (Kilper & Wood, 1995: 219).

The process was managed by the Emscher Park Planning Company plc. Rather than attracting 'external large-scale investors for prestigious mega-projects', the company's overarching approach was that 'the region's renewal should be developed and carried out by the region itself' and its role was to 'mobilise existing potentials, institutions and actors for new orientations, and for the creation of new interlinkages and network structures' (Kilper & Wood, 1995: 218). With this ethos, the IBA was a break from the classical government-sponsored development programme (Ibid. 211).

The company had operational autonomy from the government. Founded with only €18m from the state, it packaged and organised funding for projects from various other government programmes and private sources rather than directly funding them itself (Schepelmann *et al.,* 2015: 9). By the end of its 10-year timeframe, the company had coordinated €2.5bn in funding for 123 cooperative projects including the Zollverein UNESCO Heritage Site, artist hubs, sustainable residential schemes and the Science Park and Solar City Gelsenkirchen (Schepelmann *et al.,* 2015: 14; Internationale Bauausstellungen, 2019a). This Science Park and Solar City, established in 1996, created a sustainable industry cluster with hundreds of renewable energy jobs and prompted additional employment in education, science and R&D (See Jung *et al.,* 2010).

The IBA provided a means through which the industrial and cultural heritage of the region could be acknowledged for the first time. The initiative also allowed for the testing of new forms of dialogue and collaboration between stakeholders that led to the creation of 'regional development coalitions'. These coalitions have been an important foundation for further diversification initiatives to create new industries in the Ruhr (Galgóczi, 2014: 228).

Under these initiatives, skills audits were conducted of workers and companies in the coal and steel industry, uncovering a regional 'hidden' knowledge base that was skilled and innovative in energy efficiency, renewable resources, recycling and waste combustion. These skills had been honed after decades of work in managing the energy resources needed by the coal and steel industries, and mitigating the environmental waste they produced. This 'hidden knowledge base' also enabled companies to examine their own innovation potential and begin the diversification process into new industries (Kilper & Wood, 1995: 98-99). Economic and regional planning by government, but led by local actors, was key to this development as Kilper and Wood (1995: 98) outline: 'The rise of the environmental protection industry in the Ruhregebiet cannot be understood without considering the State's involvement in initiating, supporting and organizing the formation of this new production chain'.

As an alternative, in Australia and the UK, the main focus of regional rejuvenation policies has been to attract outside investment through tax incentives and grants. This served as a predominant approach to Latrobe Valley's unemployment difficulties until 2016 and the establishment of the Latrobe Valley Authority. The result was little job growth from 1996 (Birrell, 2001: 15; Weller, 2017: 394; Weller *et al.*, 2011;). This began to change from the mid-2000s with increased state investment in civil service employment such as state government offices, healthcare and a university campus (Weller, 2019: 1267).

In the UK, the focus on outside investment similarly resulted in low-quality, low-waged work in highly mobile call centres or warehouses (Beatty *et al.,* 2019, 22). However, attracting outside investment can also be a positive boost for a region. Australia's first 'Economic Growth Zone' has been established in Latrobe Valley through the LVA, which adopts some aspects of this approach as it reimburses fees and charges incurred by businesses establishing or expanding their operations in the region. The sustainability of this initiative is enhanced by an overall focus on developing regional skills and innovation capacity, as can be seen from the summary of the Latrobe Valley Authority in Box 4.

Box 3:   The *'Unternehmen Revier'* or Mining Area Enterprise programme

This pilot assistance programme was launched by the Federal Ministry of Economics and Energy (BMWi) in November 2017 with €4m annually for ten years funded through the Energy and Climate Fund. It operates under the existing 'Entrepreneurial Regions' innovation initiative; Lusatia receives 40 per cent of this fund. The Coal Commission commended the programme 'as a sensible approach and sees it as a suitable reference point for future assistance programmes' (BMWi, 2019: 100).

The project aims to marry 'ambitious climate change mitigation targets and the restructuring of the energy supply with regional and industrial policy objectives'.

The project facilitates competitions whereby local people, companies and initiatives in the region can submit ideas and project proposals, which can be funded up to €200,000 (BMWi, 2019).

The programme is based on the Emscher Park Planning Company that existed in the Ruhr Valley from 1989 to 1999 and has a similar bottom-up approach. It aims to build up the governance capabilities of local stakeholders to support local structural change in the long run and boost local potential based on skills and abilities in the region.

The decision on who gets funding is made on the basis of regional innovation concepts (Regionale Innovationskonzepte – RIK). These overarching strategies were developed publicly in a partnership-based approach by the regional partners and agreed with the BMWi, with consultation open to the public.

The four priority areas that have been developed under the RIK are:

- Boosting the region as a business location: including increasing digital expertise.

- Increasing skilled labour: including through intra-company initiatives and vocational training.

- Creating an innovation cluster: including through networking between regions, universities and companies.

- Expertise and capacity-building: this is to strengthen regional expertise for local development, including through advice and training for digitalisation.

The different regions organise the calls for competition, select the projects to be supported and handle the funding. The project is still in its pilot stages and so key learnings cannot be developed yet.

1.9   Lesson Nine

1.9.1   Skills audits

Skills audits are very useful in transitioning a region. However, they may work best alongside a coordinating and economic planning role for the state, such as government investment in alternatives, as well as regional initiatives to use the information provided.

As outlined by the European Council's *Upskilling Pathways Recommendation*, skills audits enable the identification of skills that a fossil-fuel worker has already acquired, and any gaps that need to be filled to avail of new opportunities. This enables a body tasked with transition management to develop a plan for next steps in training and support, tailored to the actual needs of an individual, and with a view to a qualification (Donnari *et al.,* 2018: 110).

Building intelligence from the region is useful. However, a focus on asking businesses what skills they need is generally not the best approach. Most firms do not analyse their training needs and are not in a position to do such an analysis. In the Ruhr, the state of NRW sought to ensure provision of further training in the region as its transition was tailored to 'regional requirements'. However, the general result was that firms do not know what their skills needs are, and decision-making on adaptation to future skills needs is done in an *ad hoc* manner (Bosch, 1999: 131). For example, in the 1980s, an expensive survey in the Ruhr of 2000 industrial and craft firms led 'only to the crude, almost trivial conclusion that further training needs will rise in future in connection with the introduction of new technologies' (Braun-Henze *et al.,* in Bosch 1999: 131)

Further training policy has to be future-orientated, particularly when it comes to infrastructure decisions and long-term programme planning. Courses can take 2-4 years and their planning can take just as long. Therefore, to fully reap a region's hidden skills and capacity potential, active development of future training policy by the state is likely to be required, coupled with an intentional investment on the part of the state in new industries – such as the NRW's leadership in focusing on 'sunrise' technologies.

The following approaches were taken in different countries:

- **Germany**: In the Ruhr, the Ruhr Coal Vocational Training Society (RKB), a 100 per cent subsidiary of the Ruhr Coal AG (the amalgamated coal companies since 1969) was established to manage labour-market transitions. A map of existing and future skills demand was used to set up skills objectives and develop model projects. For each affected worker, an individual re-employment strategy was developed in co-operation with the regional government, the company management, the works councils and social partners. The approach was deemed successful and used during the integration of the East German economy after reunification (Botta *et al.,* 2018: 38; UNFCCC, 2016: 40).

- **Australia:** In Australia, skills audits are already well developed compared to other countries (Sheldon *et al.*, 2018: 56). A comprehensive skills audit and analysis of the Latrobe Valley and Gippsland labour pool, with an eye to jobs growth in the low-carbon economy, was commissioned by the Australian government in 2012 (Fairbrother *et al.,* 2012). It was envisaged that this would be used by government bodies including the Latrobe Valley Transition Committee (Ibid. 3). However, a more comprehensive approach did not emerge until the GTLC instigated the Worker Transition and Support Centre (WTSC) as preparation for 'contracts for closure' under the 2011 Clean Energy Future Package (Snell, 2018: 555; VTHC, 2019). This body assisted workers with upskilling, accreditation and mental health counselling. The WTSC was later expanded and taken under the work programme of the LVA, becoming the Worker Transition Service, delivered jointly by the LVA and GTLC (Snell, 2018: 557) with added responsibilities from Federation Training, a Gippsland-wide further education and training government body (Victorian TAFE Association, 2017: 23). An expanded role in mental health counselling was developed (Latrobe Valley Authority, 2019c) and a 'Recognition of Prior Learning' programme now exists which conducts skills audits and accreditation (Victorian TAFE Association, 2017: 23). A 'micro-credentialling' service has also been developed by the Latrobe Valley Authority under its Smart Specialisation Strategy, which enables smaller local businesses to assess their skills and receive accreditation for them so as to showcase these skills for buyers (Cain, 2019a).

- **Scotland**: Scotland's Taskforce approach makes use of skills audits. In 2015, the Tullis Russel paper mill closed. However, 83 per cent of the workforce that was made redundant secured alternative employment during the 18 months of the taskforce being in operation. The taskforce was backed with a £6m commitment from the Scottish Government, and was co-chaired by Scottish Business Minister Paul Wheelhouse and Fife Council leader David Ross. A skills audit of the workforce was conducted, which enabled workers and the local government to market their skills to other businesses (The Courier and Advertiser, 2016). Enhanced business support was also provided by Scottish Enterprise, Business Gateway Fife and Fife Council (Argo, 2016).

Box 4:   The Latrobe Valley Authority: 'Doing things differently'

The Latrobe Valley Authority is a body that takes a place-based and participative 'co-design' approach with the local community in regional development of the Latrobe Valley.

The LVA focuses on listening, relationships and trust. The aim is to respect and understand the past and focus on local capacity-building. The community is not 'a problem to fix' but must be assisted in seeing 'itself as a contributor to prosperity of the state and nation' (Cain, 2019a). The LVA calls this 'creating the conditions for doing things differently' (Cain, 2019: 10).

The LVA is made up of 36 local people working in their own community. This is considered central to its success in trust-building (Latrobe Valley Authority, 2019c; Cain, 2019a; VTHC, 2019; Voices of the Valley, 2019). Staff have a mixture of experience, including senior public-sector backgrounds across a number of departments (education, economic, human services) and community development and psychological support. Through the direct involvement of public-sector specialists from across state and federal departments working alongside the community, the LVA represents aligned and authorised support for the region from the federal and state governments (Cain, 2019: 14).

The LVA ethos: If government does 'things differently' by supporting and working with and across 'community' in the Latrobe Valley on 'things that matter', then impact will be direct, and built on collective effort, leadership and local strengths for long-term resilience. Its activities are as follows:

- Core immediate response activities: partnered worker transition service, supply-chain support, economic stimulation for growth and new jobs, infrastructure to improve liveability, pride and social connection. A critical feature of this was an open-door policy, and working with individual people over time on their terms. This built the confidence of the community (Cain, 2019a; Latrobe Valley Authority, 2019c).

- It aims to be a 'broker' rather than a funder: supporting relationships, coordinating, and addressing gaps and opportunities; working in partnership with worker transition services; and bringing providers together in a partnership, including unions so they can understand the benefits for their members.

- Recovery and strategic action: After the recovery period, LVA began looking at long-term strategic action based on continuous discovery and check-in within and beyond the community. They focused on gaps, strengths and opportunities. To do this, priorities were developed after six months of listening to what the community wanted for itself. These ideas were tested to ensure community agreement on the direction. The focus was on funding in direct-partnership, local place-based initiatives. An example of this is GROW Gippsland (Cain, 2019a; Latrobe Valley Authority, 2019c).

- Building policy and strategies at government level: The LVA has a policy element based in Melbourne which feeds into the overarching Victoria government policy framework. The LVA advocates upwards using this policy connection. The Latrobe Valley group have been there from the beginning of the closures and are monitoring change and collecting data on the community changing over time. They have developed knowledge on behaviours, systems and changes in ways of collaboration (Cain, 2019a; Latrobe Valley Authority, 2019).

Success?: There is now a comprehensive and integrated system of linked actors and actions. They have learnt that success is dependent on building capability and systems, strong local governance, and identified priorities and commitment of local and global networks. Innovation is co-created and evolves in networks that include community, government, business and institutions (Cain, 2018).

1.10   Lesson Ten

State investment in supportive alternative infrastructure is a key driver of a positive transition.

From the beginning of the transition in the Ruhr Valley, a collaborative, coordinated decision was made by the state of NRW and the federal German government to invest heavily in supportive infrastructure, higher education and training. This led to local authorities taking on a stronger role in delivering regional development and new jobs potential. As an example, the production cluster of environmental protection in the Ruhr:

> …cannot be understood without considering the State's involvement in initiating, supporting and organizing the formation of this new production chain. More than half of environmental protection investment was made by the public sector, mainly by local authorities. The private sector investment in environmental technology is generated indirectly by State activities responding to laws to reduce emissions, waste, noise and so on (Rehfeld, 1999: 98).

The NRW government also initiated training programmes for environmental protection advisors for SMEs, founded research and development institutes, technology centres and industrial areas for environmental technology production, e.g. the IBA (Ibid. 98).

In Latrobe Valley, the Victoria government focused on building major infrastructure such as sports facilities, and upgrading schools and other public buildings alongside a large new energy efficiency project (Latrobe Valley Authority, 2019: 2019a). These measures were focused on improving the liveability and self-confidence of the region (Voices of the Valley, 2019; Whittaker, 2019b). Local procurement contracts were also used so as to transition Hazelwood workers and provide employment in the region under GROW Gippsland (GROW Gippsland, 2019).

1.10.1   Government investment and infrastructure

Government investment and infrastructure is important not only for managing a closure, but for reaping the benefits of a transition.

Although it is a case study still in development, an interesting issue that emerged from interviews with key stakeholders in Scotland from across the spectrum was the call for an intentional, government-led economic and industrial policy to reap the benefits of the transition (STUC, 2019a; FOE Scotland, 2019; OGTC, 2019).

In Scotland, the shift to the low-carbon economy was predicted by economic modelling to lead to major jobs for the Scottish economy. However, 10 years later these job gains have not emerged. Economic modelling was incorrect, and out of around 130,000 jobs promised for Scotland by 2020 only 46,400 have emerged (Scottish Parliament, 2019; STUC, 2019: 3).

The Scottish Government and associated bodies such as Scottish Enterprise, Skills Development Scotland (SDS) and Invest in Fife have invested in exploring

opportunities of the low-carbon economy in terms of jobs growth, and assessing the skills that are required in order to reap those opportunities and jobs.[6] Despite this research – according to stakeholders in unions, NGOs, academia and businesses even within the oil and gas industry – a major opportunity is being missed by the Scottish government to build an indigenous workforce and manufacturing industry that can reap the benefits of the shift to a low-carbon industry.

The Skills Investment Plan (2011: 9) notes that skills suitable for the low-carbon economy are there, yet there is difficulty in accessing them. One factor that has been pinpointed by Skills Development Scotland as contributing to the difficulty, is the lack of apprenticeships in the sector, which would provide a recruitment pathway into low-carbon work (Ibid. 9). Another issue appears to be a lack of collaboration between universities, colleges and industry, which would produce postgraduates with the required R&D skills, as well as 'provide flexible skills support for environmental qualifications' among workers in the industry. This collaboration would create a 'sufficient resource pool to develop solutions to technical challenges' in low-carbon industry (Ibid. 9).

For the Just Transition Partnership, the Oil and Gas Technology Centre and GMB trade union, the reasons for the mismatch between available skills and use in the new economy is the lack of investment by government in leading the transition itself, through government energy companies or part-investment in the new offshore wind industry. For these groups, local workers already have the necessary skills; the issue is out-of-date manufacturing yards and an overt reliance on attracting renewables investment from multinational energy companies through subsidies, tax incentives and support in accessing planning permissions. For these groups, a state-owned energy company, or part-investor, would invest in manufacturing sites and create an indigenous industry. Other recommendations for the short term from unions and environmental NGOs, are tougher uses of local procurement clauses in contracts for difference, energy consents, carbon footprint of construction (wind-turbine jackets are currently being shipped from Indonesia to Scotland), legislating for local content requirements and sectoral bargaining on employment conditions (STUC, 2019: 14; Muttitt *et al.,* 2019: 52).

The German Coal-Exit Commission similarly recognises the need for government to financially and structurally support climate action as '[t]he energy transition describes a path involving the politically driven, structural adaptation of the energy system' (BMWi, 2019: 3) and such politically driven decisions must be accompanied by social consensus and government support.

In Latrobe Valley, the Victoria state government has instigated local procurement and local employment clauses. Of the A$266m fund committed to Latrobe Valley after the closure of Hazelwood power station, A$174m is to be spent on infrastructure, including sports, improvements to nine schools and a purpose-built regional employment hub. This infrastructure is to be built using local procurement

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[6]   See reports: Skills Investment Plan for Scotland's energy sector by Skills Development Scotland (2011: 3), Invest in Fife – Renewables (2014, 2014a, 2014b) and DeepWind Offshore Wind Cluster (Offshore Wind Scotland, 2019).

and workers, some of whom are former Hazelwood and Carter Holt Harvey timber-mill workers (Voices of the Valley, 2019; Latrobe Valley Authority, 2019c). The LVA has also acted as a broker between businesses in order to create the GROW Gippsland (Growing Regional Opportunities for Work) programme. This has secured a commitment from local companies to move 7 per cent of their regional expenditure to local suppliers by 2020 (GROW Gippsland, 2019).

1.10.2   Public investment

Public investment should not be directed towards companies alone.

One criticism of the Coal-Exit Commission is its recommendation to compensate companies for potential profits forgone and if their running costs increase when cheap lignite is phased out (ClientEarth, 2019; Correspondence with the Ecologic Institute, 2019). This leads to a precedent for expensive transitions that may not be affordable for developing countries. Many of the power plants were also uneconomic and already slowing down operations. For example, when Swedish company Vattenfall decided to sell its lignite operations in Lusatia, Chief Financial Officer Ingrid Bonde concluded: 'The lignite operations are having a tough financial time. That was the rationale for us divesting it' (IEEFA, 2016: 11).

In Australia, the Clean Energy Futures Package had committed A$5.5bn over six years to energy providers as compensation for carbon pricing and 'mothballing' closures. However, as of 8 October 2019, four of the five short-listed generators under the package have closed without requiring government payments (Dundas, 2019). Although Hazelwood power station was listed for such compensation, in announcing the closure ENGIE consistently highlighted commercial reasons and the high costs of health and safety upgrades, stating 'given current and forecast market conditions, that level of investment cannot be justified' (Jotzo *et al.*, 2018: 22).

Newer fossil-fuel plants are also closing due to litigation practices on climate change and pollution, which have also contributed to a rising risk for coal projects. The latest example is that investors have lost a court appeal to build a coal mine in Australia's Hunter Valley on the grounds of its environmental impact based on evidence from a climate scientist: 'In a landmark ruling, an Australian court barred a new coal mine project citing an increase in greenhouse gas emissions, as well as uncertain economic benefits and adverse social and visual impacts' (Burton, 2019). This is also occurring in Germany as communities oppose the razing of towns and villages for further lignite mining (Oltermann, 2019).

1.11   Lesson Eleven

Personnel restructuring processes which are negotiated between companies and trade unions and/or brokered by government, such as redeployment, early retirement and internal retraining, can lead to an orderly phase-out for workers. However, a balance must be struck between such phase-outs and the community and environmental interest.

In terms of retaining high wages and conditions of quality employment for directly affected workers facing plant closures, in each of the case studies an agreement was negotiated between companies and trade unions, brokered by government, to do the following:

1.11.1   Retain staff alongside offers of early retirement

Retain as many staff as possible in surrounding related work including power stations, whether owned by the same company or others. This deal involves offering early retirement to staff in those stations and upskilling new staff so they can take over the vacated posts.

In the Ruhr Valley, the 1987 and 1993 Kohlerunde between trade unions and coal companies – brokered by government – phased out subsidies while preventing compulsory redundancies. Instead, a work redistribution programme was introduced in the form of additional non-working days. Early retirement was promoted and the workforce, in exchange, agreed to forgo a wage increase.

The final 2007 Kohlerunde agreed the complete phase-out of all hard coal mining by December 2018. This agreement again secured no compulsory redundancies and instead instituted staggered mine closures and a time delay so that 10,600 employees could be relocated to still-producing coal fields.

In Latrobe Valley, the Latrobe Valley Worker Transfer Partnership Scheme was developed by the three main power industry unions. Local trade union organisers pushed for the deal with local power plant operators, brokered by the Victoria government (Snell, 2018: 557). This was the first agreement of its kind in Australia, where closures are generally accompanied by redundancies (Victoria Government, 2017). The scheme involves an early retirement scheme being introduced in the remaining open power plants in Latrobe Valley, Loy Yang A, Loy Yang B and Yallourn. These companies were offered an incentive of A$75,000 per worker to take on younger staff to fill those empty positions (Timberbiz, 2017).[7]

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[7] According to Colin Long (VTHC, 2019), the partnership scheme builds on a 2010 Global Agreement on Fundamental Rights, Social Dialogue and Sustainable Development, reached by ENGIE's predecessor company GDF-Suez with the IndustriALL Global Union. The agreement includes specific provisions on the just transition.

1.11.2   Retain staff in existing companies as they diversify

Instead of redundancies, retain as many staff as possible in the existing company as the company diversifies into new technologies, or site rehabilitation.

With the closure of Hazelwood Power Station, 235 workers were retained by ENGIE to work in site rehabilitation. This was funded by ENGIE as part of the mandatory decommissioning process (Anderson, 2017).

With the closure of the coal mines and power plants in the Ruhr Valley, the consolidated RAG AG is to become the RAG Foundation or 'Stiftung', which will employ many workers in rehabilitating mining areas, such as operating continuous water pumps to prevent poisoned water flooding urban areas. This work is funded by a €220m a year 'eternity fund' provided by RAG Stiftung 'in fulfilment of its perpetual obligations' (RAG, 2017: 2). Should there be any financial shortfall, the Länder of NRW and Saarland and the federal government would cover the costs (OECD, 2017: 21). This retention of employees during diversification is a long-standing feature in the Ruhr. Coal and steel companies diversified into new technologies and retrained/upskilled their own workers (Davie, 1995: 154). Under the 2007 Kohlerunde, extensive opportunities were provided to workers to transfer jobs within the company either as a temporary placement or through ongoing redeployment (OECD, 2017: 24). Redundancies were prevented by all Kohlerunde as 'a company had to retain employees for alternative employment or relocate them to other sectors' (Ibid. 24).

In Scotland, former Longannet workers were involved in the demolition of the Longannet power plant (Longannet Taskforce, *2017:* 5).

1.11.3   Provision of high-quality retirement schemes

Under the 2007 Kohlerunde, an early-retirement scheme was introduced that paid more to underground miners and compensated younger retirees for age-related gaps in their retirement pensions. Underground workers aged at least 50 and surface workers aged at least 57 who lose their jobs due to the closing of mines prior to 1 January 2023 receive adjustment benefits as a form of transitional assistance for a maximum of five years until they are eligible for pension-insurance benefits (OECD, 2017: 21).

For lignite workers in Lusatia and other affected areas, the 2018 Coal-Exit Commission recommended that an adjustment allowance or Anpassungsgeld (APG) benefit from federal funds be used to compensate for shortfalls in employee pensions. A similar provision is to be provided for employees in hard coal-fired power plants (BMWi, 2019: 98).

1.11.4   Assistance with transitioning into new sectors

In Scotland, the Longannet Taskforce, which included Scottish Power, trade unions and the local council, resulted in a majority of replacement jobs being found in the Grangemouth plastics refinery nearby (FOE Scotland, 2019). Of the 370 workers that accessed PACE skills development, 99 per cent (not including those economically inactive or who chose not to access further support) secured positive destinations in

either work or training. Nearly all of the 370 Longannet workers found alternative employment or training through the Taskforce (Just Transition Commission, 2019e: 2).

In the Ruhr, under the 2007 *Kohlerunde* external transition options were provided into the services sector; for example, at Dortmund Airport and into healthcare. The Ruhr Coal Vocational Training Society (RKB), a 100 per cent subsidiary of the Ruhr Coal AG, is in charge of managing labour-market transitions (Botta, 2018: 38). A map of existing and future skills demand was used to set up skills objectives and develop model projects (Ibid. 38). For each affected worker, an individual re-employment strategy was developed in co-operation with the regional government, the company management, the works councils and social partners (Davies, 1995: 154). Workers also received qualification/requalification through training and on-the-job certification through the coal and steel companies (ILO, 2018: 7).

Under the German Coal Exit Commission, recommended measures include 'collective agreements (e.g. placement in qualified jobs through recruitment, compensation for wage losses, apprenticeships and vocational training, cushioning of financial losses or early retirement, bridges into adjustment benefit, compensation for pension deductions)', to be developed in conversation with trade unions (BMWi, 2018: 98). Whether the state or companies will bear the costs of these measures was left open (Ibid, 98).

In Latrobe Valley, as discussed above, the GTLC instigated the Worker Transition and Support Centre (WTSC) as preparation for 'contracts for closure' under the 2011 Clean Energy Future Package (Snell, 2018: 555; VTHC, 2019). The WTSC was later expanded and taken under the work programme of the LVA, becoming the Worker Transition Service, delivered jointly by the LVA and GTLC and local further education and training government bodies (Snell, 2018: 557; Latrobe Valley Authority, 2019b). Upskilling, retraining, skills accreditation, financial advice and mental health counselling support is provided on a walk-in, open-door basis (Latrobe Valley Authority, 2019c). The service is available to all employees of Hazelwood Power Station and mine, Carter Holt Harvey Morwell timber mill, associated contractors, supply-chain employees, and their family members (Ibid).

1.11.5   Balancing the community and environmental interest

In all case studies, the above schemes were generally welcomed by workers, trade unions, companies and their surrounding communities. However, there are critiques that transfers into further fossil-fuel employment, or delays in fossil-fuel plant or mine closures, do not properly consist of a 'green' just transition (FOE Scotland, 2019; Galgóczi, 2019; Snell, 2018: 558).

The German Coal Exit-Commission's agreement to phase out lignite mining and hard coal-fired stations by 2038 has been criticised by climate organisations as not being in line with the Paris Agreement targets, and for Germany becoming the only EU country with a coal exit date after 2030. This is seen as 'setting a worrying precedent for climate action in Europe and around the world' (Climate Analytics, 2019). The German public also supports the commission's earlier phase-out date of 2035 (Grieshaber, 2019; Rinscheid & Wüstenhagen, 2019).

A number of dissenting opinions were also attached to the Coal-Exit Commission on the basis of the agreement not being in line with the Paris Agreement targets (BMWi, 2019: 117) and the continued threat of villages and the Hambach forest being removed for open-cast mining (Ibid. 121). In this way, there is a conflict between communities and the agreements reached for workers and coal companies.

In Latrobe Valley, most Hazelwood employees were transitioned into further fossil-fuel employment, contributing to the difficulties for the region envisaging a future beyond coal or new power stations. This imaginative 'lock-in' is evident in Latrobe City Council's 2016 *Strength-Led Transition* vision document, which calls for 'a declaration from the state and federal governments to build a new power station' as 'a new power station would create long term sustainable jobs, provide a future for our young people and hope for the community' (Latrobe City Council, 2016). The use of existing skills in the low-carbon economy is beginning to be addressed by the Latrobe Valley Authority, GTLC and community groups; for example, in the Latrobe Valley Community Transition Group report *Jobs and Hope in the Latrobe Valley: One Way Forward* (2016).

1.12   Other Minor Recommendations

1.12.1   Just transition is not limited to national responses

Just transition also applies to the operations of companies overseas. The closure of Hazelwood power station and mine occurred due to lack of commercial viability, but also a public and well-coordinated campaign by environmental groups to pressure ENGIE into divesting. This, unfortunately, did not result in an accompanying structural adjustment package from the company or a long notice period for workers or the community. Without the work of regional social dialogue, backed with major support from government, the closure of Hazelwood would likely have resulted in a repeat of the adjustment in the 1990s. It is worth exploring whether just transition measures can be attached to climate mitigation and adaptation proposals with an overseas impact on supply chains.

1.12.2   Care should be taken when basing decision-making on predictions from economic modelling

As evidenced in the Scottish case study, economic modelling may show large employment benefits from the transition, but this increase in employment is unlikely to be harnessed without government action. Policy, preparedness and supports must be in place to harness the benefits of a transition; otherwise benefits will accrue elsewhere.

Chapter 2
Case Studies

## 2.1   Case Study 1: Germany

Key Learnings

- Phase-out is context-specific and regional differences play a major part in a transition.

- Government and regional support is key to the transition.

- Control by vested interests over the direction of a region can hamper development and entrench difficulties at great expense.

- Structures must be developed to allow regions to be resilient to change and cope well with market shifts. Social partnership structures, strong welfare and strong community and worker involvement in decision-making can do this.

Introduction

Germany has undergone a number of major economic transitions, not least the integration of West and East Germany in the 1990s. Another transition for Germany is the phase-out of the country's reliance on coal, the fossil fuel that powered Germany's industrial revolution and was central to West Germany's economic success after the Second World War.

There are two types of coal in Germany, hard black coal, and brown or lignite coal. There is a major difference between hard coal and lignite areas in Germany. Hard coal was mined in urbanised and strongly industrialised regions. Lignite mining, however, occurs in rural areas such as Lusatia with a low population where employment is predominantly in mining and the energy sector (Galgóczi, 2019: 39).

Mining for hard coal in Germany officially came to an end on Friday, 21 December 2018. The decision to shut the last hard coal mines was made in 2007, for purely economic reasons. The aim of the transition was to wean mining communities off coal onto new enterprises in order to head off the hard-coal mining industry's overall structural decline across western Europe due to competition from cheaper extraction costs elsewhere and a diversifying energy mix (OECD, 2017: 22; Oczkowska & Pellerin-Carlin, 2019: 2; European Commission, 2019a).

Figure 2:   German coal regions
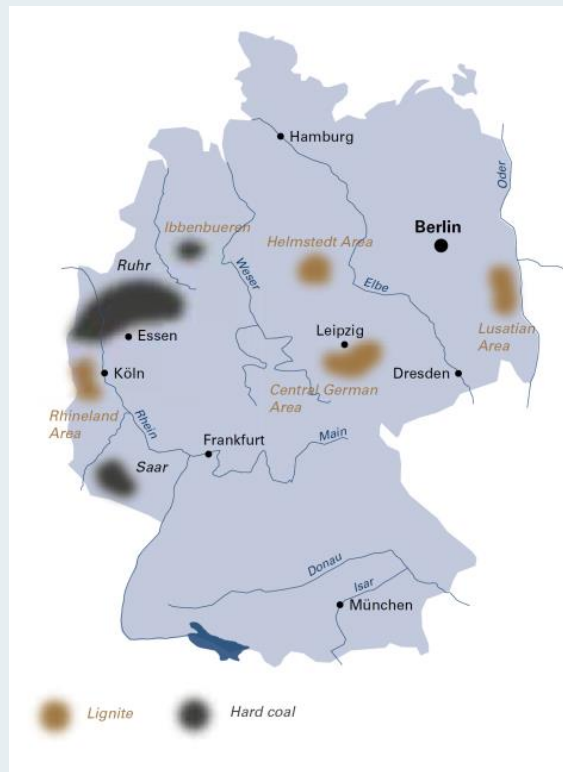
Source: Euracoal, 2019

The closure of the hard coal mines was the culmination of decades of guided transition led by government. The Ruhr's transition is regularly cited as a leading international example of economic restructuring management (see ILO, 2015: 2018; Galgóczi, 2014; UNFCCC, 2016; Botta, 2018).

The Ruhr Valley, an area once extraordinarily reliant on hard coal and related industries, has undergone permanent structural change over the last 60 years. It has achieved a fundamental transformation from coal production and steel to a knowledge-based economy (Galgóczi, 2014). However, hard coal is still imported from cheaper mines in countries such as the US (Abraham, 2017: 224), Poland, Columbia, Australia and Asia to run German power stations in Germany (Appunn, 2019). Coal mining also continues in Germany but only for brown or lignite coal, which requires the stripping of large areas of land for local power stations that generate electricity.

Figure 3:   Coal production and employment in Germany 1957-2014

Coal production and employment in Germany, 1957–2014
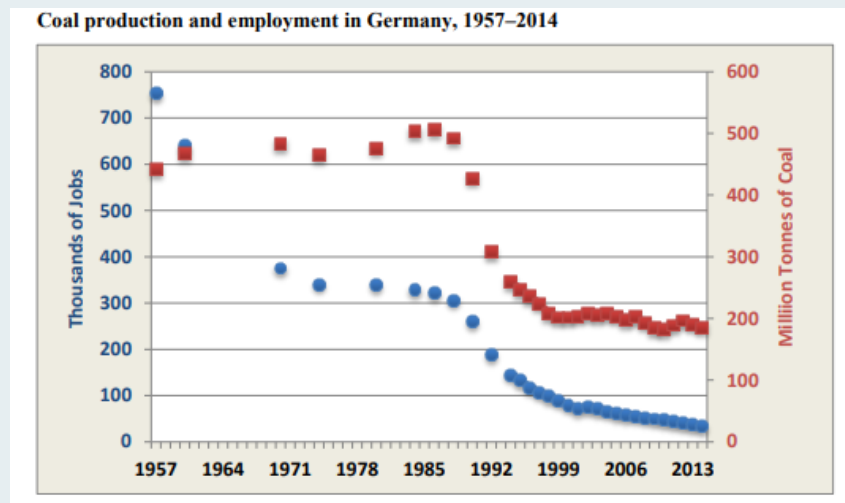
Germany has now a second transition ahead of it – the phase-out of lignite mining and all coal-fired power generation. This time the aim is to meet the needs of climate action. In 2016 a decision was made to entirely phase out all Germany's reliance on coal. This includes:

- domestic use of imported black coal in power production;

- domestic mining of lignite coal; and

- use of domestic lignite coal in power production.

A 'Coal-Exit Commission', officially termed the Commission on Growth, Structural Change and Employment (BMWi, 2019) was set up to manage this process. On 17 May 2019, after more than six months of intensive and multilateral deliberations with a wide range of experts and stakeholders, the commission published its final report. Decisions include shutting down all its coal-fired power plants over the next 19 years. Its recommendations will also become part of Germany's first federal Climate Action Law.

Germany is now applying its own internationally renowned procedure of transition in the Ruhr Valley to the phase-out of lignite coal and coal production plants, without a 60-year timeframe. The following case study explores the Ruhr Valley's transition and then focuses on Lusatia (Lausitz), a lignite coal mining community that is one of four mining areas involved in the second transition.

Institutional structures in place

Political, economic and social context, e.g.: What type of government, public engagement, federal or regional? Is there a history of social partnership? What type of economy? Is it a liberal market economy (LME) (e.g. US, UK, Canada, Australia, New Zealand, Ireland) or a coordinated market economy (CME) (e.g. Germany, Japan, Sweden, Austria)?

Using Hall and Soskice's *Varieties of Capitalism* analysis, the German economy is a 'coordinated market economy' (CME) with a long history of social partnership structures (Hall & Soskice, 2001). Government, businesses, trade unions and financial institutions generally work closely together within sectors. This enables long-term planning, long-term capital investments, for workers to make long-term investments in industry-specific skills, and for all to work together and engage in planned, incremental innovation to accommodate changes in market conditions and government regulations or state imperatives (Abraham, 2017: 220). As stated above, a feature of Rhenish capitalism is the prominent role given to unions and collective agreements in socio-economic policy-making and the codetermination of employees under *Montan-Mitbestimmung* (parity codetermination)(Galgóczi, 2014: 234).

The German political system is organised along federal lines. Germany comprises 16 states collectively referred to as *Länder*. For regional administrative purposes, five states (Baden-Württemberg, Bavaria, Hesse, North Rhine-Westphalia and Saxony) consist of a total of 22 Government Districts (*Regierungsbezirke*).

Germany is bound by a constitutional requirement to create equivalent living conditions in all sub-regions. Article 72, paragraph 2 of the Constitutional Law formulates a statement on spatial equilibrium, thereby conferring on the federal level the authority to act or legislate:

> … if and to the extent that the establishment of equivalent living
> conditions throughout the federal territory or the preservation of legal
> or economic unity in the national interest require regulation by the
> federal law.

The German Länder have the greatest degree of regional autonomy in the world, according to the Regional Authority Index, with high autonomy over decentralised spending and high tax revenues (OECD, 2019: 6). German municipalities also enjoy a high degree of autonomy. Local autonomy is ranked seventh out of 39 countries, according to the *Local Autonomy Index* (Ladner *et al.*, 2015: 6).[8]

As a federalist country, Germany gives municipalities a strong legal status and well-defined institutional positions in the vertical relations between the different levels of government (Ladner *et al.*, 2015: 76). Policy scope and effective political discretion are influenced by patterns of cooperation between the different levels of government.

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[8]   Including the 28 EU member states and the three in the European Economic Area (EEA) (Ladner *et al.,* 2015: 6) see also Ladner, 2014.

2.1.1 Case Study 1A – Phase-out of Hard (Black) Coal Mining in the Ruhr Valley/Ruhrgebiet

'Es war keine Ponyfarm' (It was no pony farm)[9]

Key Learnings

- A successful transition takes time, a strong vision of the future, commitment by all levels of government, and adequate resources.

- Significant public investment in higher-education institutions and technology centres enabled the region to lay the foundations of a knowledge-based economy as an alternative.

- Control by vested interests over the direction of a region can hamper development and entrench difficulties, at great expense.

- Change is inevitable and structures must be developed to allow regions to be resilient to change and cope well with market shifts.

- Social partnership structures, strong welfare and strong community and worker involvement in decision-making (as part of a cooperative tripartite structure) is an important factor.

- Core involvement of unions and the local community secures better outcomes in terms of pay and conditions in new employment and legitimacy for the transition.

- High regional and local autonomy in Germany for municipalities and regional governments, coupled with significant financing, was crucial to success.

- Historical background

- Social, economic and environmental history of the area; e.g. where the mines came from, how many workers were there previously and why, set-up of the company and surrounding ethos.

- What is the role of fossil fuels (existing and new)?

- What activities are in the area? Is the area diverse in its income or heavily reliant on fossil fuels?

- The Ruhr District is a large, densely populated and heavily urbanised region in the German state of North Rhine-Westphalia (NRW). The Ruhr developed economically through its historical dependence on coal mining, coal power generation and coal-reliant heavy industries such as steel production (Botta, 2018: 37).

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[9] A German phrase meaning 'it was no picnic', used by retired miners to describe the transition. See Bryce, 2017.

Figure 4:   Regions in the Ruhr Valley in North Rhine-Westphalia, Germany

Hard coal has been central to the culture of the state of NRW and Germany for 200 years. The abundant resource in the Ruhr District was central to German militarism through two world wars and helped ensure West Germany's economic success after the Second World War. As Europe's largest industrial agglomeration of related industries, it then became the heart of the European Coal and Steel Community, which evolved into the European Union (O'Malley, 2019).

The region became almost entirely dependent on coal production and its related industries, the owners of which were a few very large firms. The peak of coal and steel production in the Ruhr was reached in the 1950s. In 1957, employment in the Ruhr's coal and iron and steel industries was 807,400, or about 70 per cent of the region's total employment. Of these, 473, 600 worked in coalmining (Sheldon *et al.*, 2018: 28).

While coal consumption remained high, by the 1960s and 70s the industry and region suffered a sharp industrial decline and rise in unemployment. In 1960, the number of coal-mining employees had fallen to 390,000 (Sheldon *et al.*, 2018: 28). This decline continued due to:

- the rise of imported oil, and later gas, as fuel;

- cheap coal imports from countries with cheaper extraction costs (OECD, 2017: 22) such as the US and Columbia, particularly as the Ruhr Valley's coal became concentrated in deeper and more geologically complicated areas (Appunn, 2019);

- the availability of less-expensive steel on the global market, particularly from Asia; and

- diversification of the energy mix, including an increase in renewable energy and further gas use.

However, policies and subsidies continued to support the traditional industries until the 1970s. There was widespread reluctance to accept that the Ruhr's fossil-fuel-reliant industries had entered a phase of historic, structural decline rather than a merely cyclical drop (Galcógzi, 2014: 224; Oei *et al.,* 2019: 7).

From 1990, Germany started to reduce coal subsidies, which led to a tripartite agreement in 2007 to completely phase out hard coal mining in the Ruhr and adjacent regions by 2018, but not coal-fired power stations or manufacturing. Employment in hard coal mining in the area was radically downsized, from 473,000 in 1957 to 11,448 by the end of 2013 and then to zero by 21 December 2018 (Galgóczi, 2019: 30). Iron and steel employment also fell dramatically, but less so than in coal.

On Thursday, 20 December 2018, coal workers started their final shift in Prosper-Haniel, the last pit in Germany (Steinmeier, 2018). Germany held a public celebration of the contribution of hard-coal miners to the nation, with many communities holding ceremonies as a thank you for decades of often dangerous work to provide *Lichtbeidernacht* ('sharing the light at night') (WDR, 2018).

Figure 5:   **Popular 'light in the night' poster used as a gesture of thanks and respect to hard coal-mine workers and communities in December 2018**

Source: WDR, 2018

The scale of the transition envisaged

What did the transition aim to do?

Was the focus on redundancies, upskilling, retraining, wider community development or a more expansive whole-of-government/whole-of-economy approach?

Did the transition form part of an EU-wide, regional or national transition?

The aim of the transition was to wean mining communities off coal onto new enterprises in order to head off industry decline caused by competition mainly from cheap imports and a diversifying energy mix.

Originally, the focus was on simply supporting and maintaining the control of existing industry through policy supports and subsidies. From the 1990s, and decidedly from 2007, the focus was on improving the resilience of, and diversifying the development of, the entire region. The process was propelled further by EU legislation that required member states to phase out state aid to the production of coal from uncompetitive mines by the end of 2018 (see European Parliament, 2014: 2019). This led to the closure of the last hard coal mine in December 2018.

The Ruhr Valley, an area once extraordinarily reliant on hard-coal and related industries, has undergone permanent structural change over the last 60 years. It has achieved a fundamental transformation from coal production and steel to a knowledge-based economy in a region of 5.4 million inhabitants that, until 1962, had no university (Galgoczi, 2014: 225). The regional economy now has a diverse profile, including environmental compliance, eco-tourism, several leading universities, renewable energy manufacturing and high-tech hubs (Galgóczi, 2014: 218).

Figure 6: Employment in Germany's hard-coal mining industry, 1960-2015
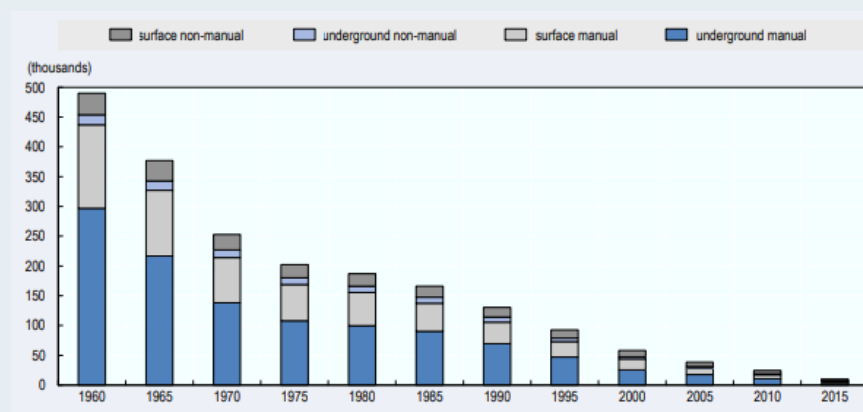
Source: OECD, 2017: 22

The role of government

What was the role of government in the transition? What institutions were recommended and what did government set up?

Did the government have a strong role or a hands-off approach?

The role of local authorities

Did the local authority/regional body:

- *Make an increase in good jobs the clear test for local industrial strategies?*

- *Use their convening power to bring together unions, employers and citizens to develop a clear vision and plan for their area?*

- *Work together with other key public-sector bodies to aggregate their purchasing power in support of local economic development?*

A crucial aspect of the success of the region is considered by many to be the active, collaborative management of restructuring processes by the German federal and NRW state governments as well as 'restructuring processes… embedded in an industrial relations culture in which workers' participation plays a major role' (Galgóczi, 2014: 218). Social partnership is a long-standing feature of the German economy, and the government's management of the phase-out of hard-coal mining has been praised for 'a bottom-up approach, and the critical role of co-determination with equal voices for workers and employers at the table' (Rosemberg, 2017: 8).

Galgóczi (2014: 224) divides policy responses to structural change in the Ruhr Valley since the 1960s into two categories: 'reindustrialisation and lock-in' and 'neo-industrialisation'. Although part of the 'neo-industrialisation' frame, the final 2007 agreement to completely phase out coal is discussed as a third section.

Reindustrialisation

As stated above, until the 1980s Ruhr adjustment programmes were characterised by widespread reticence by governments and the region to accept that the Ruhr's fossil-fuel-reliant industries had entered a phase of historic, structural decline rather than cyclical factors that could be waited out. For most of the last 60 years, Germany's hard-coal mines have been unable to survive without subsidies (OECD, 2017: 20). Institutional cooperation among trades unions, coal and steel companies and local government through social partnership structures facilitated a 'lock-in' situation that benefited vested interests for almost two decades from the mid-1960s to the 1980s (Galcógzi, 2014: 224), 'leading to persistent attempts to modernize the old structures of the Ruhr area instead of turning to new economic possibilities' (Oei *et al.,* 2019: 7).

This was understandable; first, the region had no experience in developing more diverse patterns of economic activity beyond these industries and had few small and medium-size enterprises (SMEs). The region also had a weak educational system (Galgoczi, 2014: 225).

Secondly, there was a realisation at an early stage that the region's high wages and tradition of worker codetermination would potentially scare off outside investment (Davies, 1995: 142; Cooke, 1995b: 236). A decision was made by NRW, in cooperation with the social partners, to preserve highly skilled and highly paid employment by building up regional capacities and abilities in order to secure a niche in the increasingly globalised economy (Ibid. 236). This unfortunately led to retention of coal and steel reliance until a breakthrough was reached with the Zukunftsinitiative Montanregion (ZIM) (Future initiative – coal and steel regions) and International Building Exhibition (IBA) approach in the 1980s (see below).

In the 1960s government supports included:

- the granting of subsidies to power plant operators and the steel industry for using domestic hard coal; and

- financial support for social welfare and redundancies.

Pit closures resulted in social unrest, and a more active structural policy in Germany was introduced (Abraham, 2017: 231). In 1968, the federal government passed the Coal Adjustment Law, *Kohleanpassungsgesetz,* to consolidate several hard-coal mining companies into an umbrella company, Ruhrkohle Ag (now RAG AG) and manage the closure of the least profitable pits (Abraham, 2017: 232). The Ruhr Development Programme (*Entwicklungsprogramm Ruhr*, EPR) was established the same year (Dahlbeck & Gärtner, 2019: 39). The major aim of this programme was to tackle the scarcity of land and encourage industries to sell land in order to attract new industries and encourage development. This proved difficult due to the refusal of coal and steel companies to give up land (Oei *et al.,* 2019: 7). The EPR led to a focus on developing the region rather than continuing to support a minority of industrial interests, including through (Dahlbeck & Gärtner, 2019: 39):

- socially responsible reduction in employment in the coal industry; and

- expansion of the infrastructure in the Ruhr area with the aim of aligning it with nationwide standards, including:

    o expanding the road network and public transport system;

    o schemes to improve the degraded environment in the region after many years of coal mining, including expanding regional recreational facilities such as public parks; and

    o establishing and expanding new organisations of higher learning, universities and technical institutes, education and research infrastructure. (The first university in the region, Ruhr-University Bochum, was founded in the mid-1960s).

Financial support for these initiatives amounted to DM17bn from 1966 to 1975, supported by the German federal government, the federal state, the European Community (EC) and the Germany Federal Labour Office (Dahlbeck & Gärtner, 2019: 39).

These investments in environmental initiatives and education kick-started the process of shifting the region from an industry location to a service industry based on research and development (Schulz & Schwartzkopff, 2016: 5). However, the global oil crisis in the 1970s led to an improvement in the region's coal and steel industry competitiveness. Policy-makers returned to supporting existing large industry (Herpich *et al.*, 2018: 15). This included:

- the introduction in 1974 of a *Kohlepfennig* (coal penny), a special consumer tax on electricity that subsidised domestic hard coal, which was overturned by Germany's Federal Constitutional Court in 1994 (Dahlbeck & Gärtner, 2019: 38); and

- the establishment of the Ruhr Property Fund (*Grundstücksfonds Ruhr*) to rehabilitate old abandoned land and make it available for new businesses. Local government tried to attract inward investment in large-scale *de-novo* industries such as micro-electronics, cars and chemicals (Dahlbeck & Gärtner, 2019: 41). Partly due to the resistance from vested industrial interests in the region to selling land, these government initiatives for economic restructuring failed (Galcógzi, 2014: 225).

Despite these efforts to remain competitive, many mines and plants were forced to close, albeit in relatively controlled and coordinated ways through the provision of wage subsidies, compensation payments or early retirement. Subsidies and policy supports to the traditional industries remained until the 1970s and to coal production until 1990.

Neo-industrialisation

By the 1980s, policy-makers had largely accepted the increasing urgency of diversifying the region's economy. In the late 1980s and early 1990s, the European Commission intervened several times to underline the need to phase out coal subsidies as part of the competition policies of the European Community (OECD, 2017: 23).

The beginnings of a breakaway from the old industrial monostructure in the Ruhr began in 1980 with the Ruhr Action Programme in 1980 (Aktionsprogramm Ruhr – APR). It focused on building systematic coordination between the largest interest groups and state institutions. Its main target was the development of small to medium enterprises (Galcógzi, 2014: 235). The APR operated for four years and had a total budget of DM6.9bn, of which DM5.1bn was provided by the state of NRW and DM1.5bn by the German federal government (Herpich *et al.,* 2018: 15). The APR was focused mainly on modernising and reviving the coal and steel industry planning (Schulz & Schwartzkopff, 2016: 6), but it began the process of integrating local actors and local political dialogue into the process of regional planning. This led to further projects with a long-term focus on structurally developing the region, rather than simply continuing to support a minority of industrial interests (Schulz & Schwartzkopff, 2016: 6).

In 1984, the NRW state changed its response to neo-industrialisation through a more proactive industrial policy and developed a programme aimed at 'sunrise technologies' with a focus on environmental and renewable energy technology. The state government of NRW was central to the process and acted in partnership with

municipalities, universities and private actors. The approach, however, was still largely top-down and highly-centralised. The state-level institutions of NRW pre-defined and directed investments and projects, with little input from stakeholders at local and district levels (Galgóczi, 2015: 228).

In 1987, a *Kohlerunde* or 'coal roundtable' was facilitated by government, gathering the social partners in the coal-mining industry to come to an agreement about the downsizing of the sector through to 1995. This instituted a process whereby no employee would be made redundant; instead 'a company had to retain employees for alternative employment or relocate them to other sectors' (OECD, 2017: 24).

The Ruhr *Kohle Bildungsgesellschaft* (Ruhr Coal Vocational Training Society), a 100 per cent subsidiary of the Ruhr Coal AG, was put in charge of managing labour-market transitions, including assessing current and expected demand for skills, and organising training programmes (Botta, 2018: 38). A map of existing and future skills demand was used to set up skills objectives and develop model projects (Ibid. 38). For each affected worker, an individual re-employment strategy was developed in cooperation with the regional government, the company management, the works councils and social partners (Davies, 1995: 154). Workers also received qualification/requalification through training and on-the-job certification via the coal and steel companies (ILO, 2018: 7).

A skills audit was conducted of the region and workers in the coal and steel industry, uncovering a regional 'hidden' knowledge base that was skilled and innovative in renewable technology, energy efficiency, renewable resources, recycling and waste combustion (Kilper & Wood, 1995: 98-99). These skills had been honed after decades of work in building mining components, managing the energy resources needed by the coal and steel industries, and mitigating the environmental waste they produced (Galgóczi, 2016: 15).

Indeed, environmental regulation became a major new industry in the region and the Ruhr has become a key centre for environmental industry, technology and research in Germany. Economic and regional planning by government, but led by local actors, was key to this development, as Kilper and Wood (1995: 98) outline: 'The rise of the environmental protection industry in the Ruhregebiet cannot be understood without considering the State's involvement in initiating, supporting and organizing the formation of this new production chain'. Today, local firms, universities, research institutes (e.g. the Soil Protection Centre and the Environmental and Packaging R&D Centre) and environmental agencies still cooperate closely (Campbell & Coenen, 2017: 9).

By the late 1980s and early 1990s, the NRW regional government had created instruments for the first time to strengthen regional developments under the *Zukunftsinitiative Montanregion* (ZIM) (Future initiative – coal and steel regions) and Future Initiative for the Regions of North Rhine-Westphalia (ZIN). In these future-oriented initiatives, the state of NRW promoted projects and activities based on principles developed by the state and local actors together (Huggins & Thomalla, 1995: 21), including:

- supporting regionally identified innovation;

- economic, urban and spatial development;

- literacy in education and science;

- raising cultural profiles; and

- promoting urban development.

In these initiatives, NRW developed broad, state-level guidance in long-term planning, but design and implementation was directed at the local level by local actors (see Box 2) (Kilper & Wood, 1999: 211; Galcozi, 2014: 228).

The Emscher Park International Building Exhibition (IBA): 'Workshop for the Future of Old Industrial Areas' (See Box 2)

The design of ZIM and the Emscher Park International Building Exhibition (IBA) provided a means of breaking through the region's institutional lock-in (Kilper & Wood, 1995: 216; Rehfeld, 1995: 98; Botta *et al.,* 2018: 37). Even though control over the region's future was still kept in the hands of those that had contributed to that lock-in (Kilper & Wood, 1995: 216). The difference was the focus on an open experimental learning process that embraced and included all actors in the region, brokered by government (Ibid. 216). This new process and focus on local authorities also provided an avenue for community and environmental input, which had not been as present in previous policies and *Kohlerunde* (Kilper & Wood, 1995: 221).

Complete phase-out: from 2007 onwards

From the 1990s onwards, Germany started to reduce coal subsidies, as directed by the European Commission. This was also driven by the cost on public finances of the reunification of East and West Germany in 1990 (OECD, 2017: 23).

In 1991 a second *Kohlerunde* was called to extend the 1987 agreement beyond 1995, resulting in the Coal Concept 2005 (OECD, 2017: 23). In 1993, a further agreement institutionalised a socially responsible approach to labour downsizing alongside the phasing-out of subsidies to the mining sector (Galgóczi, 2015: 17). Compulsory redundancies were avoided and replaced with a work redistribution programme in the form of additional non-working days. Early retirement was promoted and the workforce also agreed to forgo a wage increase (Galgóczi, 2015: 17).

From 2009 the European Emissions Trading System (EU ETS) and the Renewable Energy Directive came into operation and regulated coal production. However, they were ineffective in phasing out coal in Germany, though they may have provided a cultural shift as part of the *Energiewende* from 2000 to transition to a low-carbon, nuclear-free economy (Brauers *et al.,* 2018: 11).

Figure 7:   Future initiative Montanregion (ZIM) 1987

Five activity fields of the future oriented
region for the coal, iron, steel industries (ZIM)

Support of innovation and technology

Future oriented qualification of employees

Creation and security of jobs

Enlargement and modernization of the infrastructure

Improvement of the environmental and energy situation
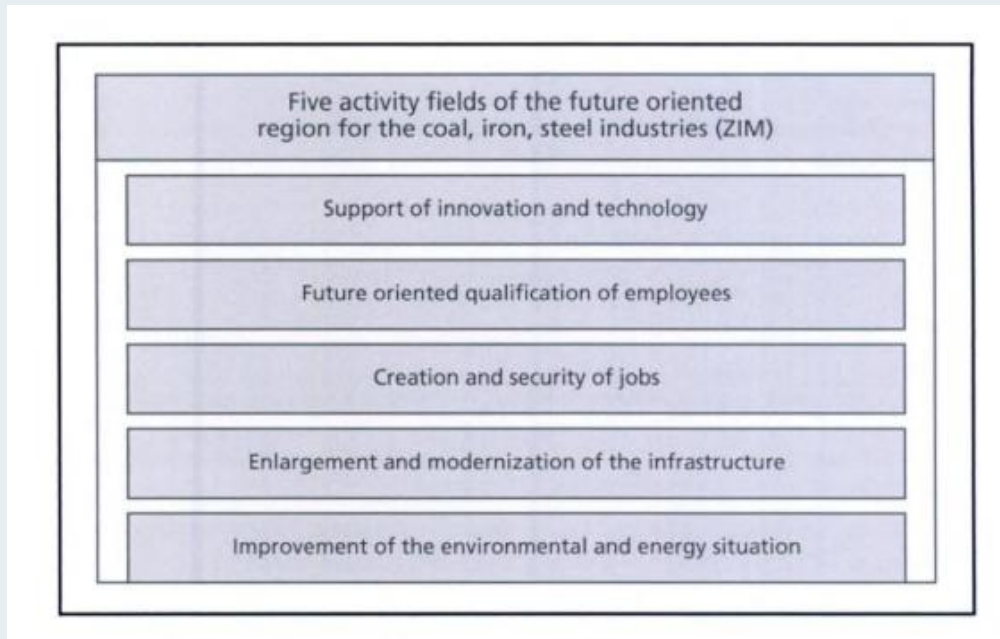
Source: Eckart et al., 2003: 132

**Figure 8:   Emscher Park Cycle Route, including industrial and environmental
sites of interest**

Emscher Landscape Park
Emscher Park Cycle Trail
Connecting paths and trails

1 Emscher Landscape Park Information Centre –
   Haus Ripshorst
2 Ripshorst Wooded Garden
3 Frintrop Railpark
4 Beckstraße Tip and the Tetrahedron
5 Schurenbach Tip
6 Nordstern Park
7 Rungenberg Tip
8 Hoheward Tip
9 Mont-Cenis District Park
10 Erin Park
11 Waltrop Lock Park/Henrichenburg Shiplift
12 Brockenscheidt Tip

13 Lünen Lakeside Park
14 Großes Holz Tip
15 Schulze-Heil Ecology Station
16 Lake Bever Nature Protection Area
17 Hansa Coking Plant
18 West Park Bochum
19 Consol Park
20 Rheinelbe Tip
21 Mechtenberg Landscape Park
22 Zollverein Park
23 Garden of Memories
24 North Duisburg Landscape Park

Source: Internationale Bauausstellungen, 2019

Finally, in 2007, a tripartite agreement was reached to completely phase out hard-coal mining in the Ruhr and adjacent regions by 31 December 2018 (though not coal-fired power stations or lignite mining) in a socially responsible manner (OECD, 2017: 21). The agreement was negotiated between the (now consolidated coal company) German Coal Association (GVSt) and the trade union for mining, chemical and energy industries (IG BCE) and brokered by the federal and state governments. The agreement came into force on 1 April 2012 and includes the following (OECD, 2017: 22-24; Sheldon *et al.*, 2018: 33):

- Specific legislation was introduced to require the federal and NRW governments to fund structural adjustment in a reliable, ongoing way. Aid will continue past 2018 only for employee retirement schemes (until 2027) and rehabilitation of mining areas (in perpetuity) (OECD, 2017: 27).

- The mining industry was further consolidated under one entity, RAG AG which in 2019 became RAG Foundation or *Stiftung.* As noted on P.37, this body is tasked with implementing the phasing-out process of the hard-coal sector and it has perpetual financial responsibility for the mines' long-term, legacy liabilities. Rehabilitating areas subject to environmental damage will cost €220m a year, paid for by an 'eternity fund' as part of RAG Stiftung's 'perpetual obligations' (RAG Stiftung, 2017: 2), to be covered by the *Länder* of NRW and Saarland and the federal government in the event of any shortfall (OECD, 2017: 21).

- The 2007 agreement requires 'socially acceptable staff reduction', which became a comprehensive package of just transition measures for affected mineworkers. This included:

  - Staggered mine closures and a time delay to the phase-out to 2018 'solely to ensure socially acceptable staff reduction' (Wodopia, 2017: 13) with no layoffs.

  - As with all the *Kohlerunde*, no redundancies were given as 'a company had to retain employees for alternative employment or relocate them to other sectors' (OECD, 2017: 24). Extensive opportunities were provided to workers to transfer jobs within the company either as a temporary placement or through ongoing redeployment. This led to the relocation of about 10,600 employees within and to still-producing coalfields.

  - A generous early-retirement scheme was set up that paid more to underground miners and compensated younger retirees for age-related gaps in their retirement pensions. Underground workers aged at least 50 and surface workers aged at least 57 who lose their jobs due to the closing-down of mines prior to 1 January 2023 will receive adjustment benefits as a form of transitional assistance for a maximum of five years until they are eligible for pension-insurance benefits (OECD, 2017: 21).

  - Workers have extensive opportunities to transfer jobs within the company either as a temporary placement or through ongoing redeployment.

  - Workers have access to qualification/requalification through training and on-the-job certification.

     o   External transition is provided into the services sector; for example, at Dortmund Airport and into healthcare.

Role of different actors

What roles did businesses, trade unions, local communities and NGOs have in the transition? What were their concerns? Did they have campaigns, certain asks or allegiances that may have helped or hindered transition?

As outlined on P.44, the Rhenish practice of co-determination under *Montan-Mitbestimmung* has led to unions and collective agreements being given a defining role in socio-economic policy making (Galgóczi, 2014: 234). Co-determination is:

> [the] practice of joint negotiation between elected workers' representatives and their managers at both the workplace and company board levels… managers must gain approval from their employees' elected works councils before making any changes involving wages, hours, safety standards, and/or employee monitoring (Abraham, 2017: 230).

Unions work closely with management, and major business decisions are not made without substantial community consultation. This, coupled with Germany's already strong social partnership leanings and high regional and local autonomy (OECD, 2019: 6; Ladner *et al.,* 2015: 6) leads to strong cooperation between different stakeholders.

As noted above, these high levels of institutional cooperation can become coercive, and lead to a 'lock-in' of vested interests (Galcogzi, 2014: 224). A means of breaking through this, however, was developed by the NRW government, with the shift of NRW state policy towards environmental technology and building the capacity and leadership of local authorities (Huggins & Thomalla, 1995: 21; Kilper & Wood, 1995: 216; Rehfeld, 1995: 98; Botta *et al.,* 2018: 37). This involved the development of an open experimental learning process through the ZIM and IBA processes that embraced and included all actors in the region, brokered by government (Kilper & Wood, 1995: 216). This new process and focus on local authorities also provided an avenue for community and environmental input, which was not as present in previous policies and *Kohlerunde* (Kilper & Wood, 1995: 221).

Skills

What structures or supports were put in place to:
- *Collect data on skill-sets in the closing plant and surrounding area, who collected this data, was it shared and how?*

- *Match skills with other enterprises/organisations in the area/region, etc?*

- *Support workers and the community on social welfare or special employment measures between jobs?*

- *Contact and engage regional (or new) educational institutions in the transition?*

- *Build skills/enterprises for low-carbon jobs (from renewables to music, etc)?*

- *Encourage enterprise and new thinking?*

To support economic diversification and regeneration of degraded areas, the public sector invested heavily in supportive infrastructure, higher education and training, and in fostering private-sector innovation and entrepreneurship. The most important early initiative is likely to have been large-scale public investment to develop strong university and technical education systems (Galgoczi, 2014: 224), alongside a locally led 'learning by learning' approach that allowed the region to develop the capacity to innovate after many years of mono-structure (Cooke, 1995: 236).

Public and private sectors also prioritised a strategy of building new initiatives from the strengths of existing activities, skills and institutions. The parties sought to ensure that sufficient decent alternative work was available for current miners and other workers, but regional strengths and skills that could meet demand were also explored. This led to a public and private-sector focus on creating sufficient skilled workers for that work (Davies, 1995: 142; Cooke, 1995b: 236).

The Ruhr *Kohle Bildungsgesellschaft* (Ruhr Coal Vocational Training Society) was charged with assessing current and expected demand for skills and with organising training programmes (Galgoczi, 2014: 236). A skills audit conducted early on in the restructuring process led to investment in new service-sector growth that built on regional strengths in the coal and steel industries. Many of these skills did not have qualifications attached as educational attainment in the region was low until the 1970s. The approach was deemed successful and used during the integration of the East German economy after reunification (Botta *et al.,* 2018: 38; UNFCCC, 2016: 40).

Examples of the strengths and skills uncovered in the region include:

- **Strong capabilities in commodity transport,** developed for the Ruhr's coal-mining and heavy industries which allowed for rapid regional development of modern packaging and transport logistics planning, design, monitoring and control services. One notable example is Siemens.

- A long history of mitigating the impact of coal and steel industries on the environment led to the development of **robust environmental protection** and environmental services industries. With further environmental regulation of plant closures and the remediation and rehabilitation of mines, the Ruhr Valley became the site of the best environmental protection industry in Germany.

- These processes also encouraged other environmental initiatives such as the **creation of public parks and eco-tourism**. By the mid-2000s, around 100,000 people were working in environmental technology research and development (Galgoczi, 2014: 228).

- Reindustrialisation support policies focused on **environmental technologies**. Suppliers of equipment to the coal-mining, power generation and steel industries were encouraged to shift to developing renewable-energy systems. This led to former coal suppliers become leading producers of wind-turbine parts.

- Research and development in **renewable sources of energy, recycling and waste combustion** has led to the Ruhr developing a comparative advantage in energy

supplies and waste disposal. A notable example is Teramex, which now develops equipment for geothermal energy (Galgoczi, 2016: 15).

Resources and investment

What resources were put aside for the transition?

What investment opportunities were used/given/sought?

Was EU, state, the relevant fossil-fuel company or private funding leveraged?

Substantial resources – EU, state and private funding – were dedicated to the transition, sometimes attracting charges of favouritism. Hard coal received €337bn in subsidies between 1970 and 2016 (FOS, 2017; Appunn, 2018).

Subsidy assistance provided to the hard-coal mining industry fell dramatically after 1998. Federal assistance approximately halved from 1998 to 2005, and shrank once again by around 25% from 2006 to 2014 (OECD, 2017: 26). However, subsidies remain for lignite mining and use of coal in energy generation, which are the subject of the Coal-Exit Commission (BMWi, 2019; Appunn, 2018).

Under the 2007 agreement, specific legislation requires the federal and NRW governments to fund structural adjustment in a reliable, ongoing way. Aid will continue past 2018 only for employee retirement schemes (until 2027) and rehabilitation of mining areas (in perpetuity) (OECD, 2017: 27).

The consolidated mining company RAG AG was tasked with implementing the phasing process and closing the hard-coal sector. Subsidies are directed to RAG AG to compensate for losses on the sale of coal for electricity generation, for the sale to the steel industry, and for costs incurred in making capacity adjustments.

As described above at P.55, long-term funding has been put aside to manage the environmental impact of coal mining in the region under the RAG Foundation or *Stiftung*.

The presence of key actors or interventions

Were there any key events that shifted debate?

The transition out of hard-coal mining was driven by the industry's overall structural decline across Western Europe due to cheaper extraction costs elsewhere (OECD, 2017: 22) and a diversifying energy mix (Oczkowska & Pellerin-Carlin, 2019: 2; European Commission, 2019a).

Key events that increased action were:

- the EU-level drive to phase out coal subsidies for uneconomic mines due to competition policies from the 1980s, culminating in more direct intervention from 1990 (OECD, 2017: 23);

- the reunification of West and East Germany, increasing costs on the public finances, leading to lack of resources for further subsidies (OECD, 2017: 23);

- the *Energiewende,* Germany's energy transition to a low-carbon economy, which has propelled renewable energy sources for electricity production, heat and energy efficiency since 2000 (Morris & Jungjohann, 2016: 5) – although coal – and particularly lignite – was envisaged as 'back-up' fuel as the *Energiewende* focused on phasing out nuclear energy (Ibid. 3); and

- public support for the *Energiewende* from the 2000s onwards, which drove increased climate action (Morris & Jungjohann, 2016: 3). However, the *Energiewende*'s increase of renewables in the energy mix as nuclear was phased out also led – paradoxically – to increased reliance on coal in what Morris and Jungjohann (2014: 4) call the 'coal conundrum' (also Morton & Müller, 2016: 2). This means that public support for more climate action may be a lesser factor in the decline of hard-coal mining than overall economic drivers. Public support appears to have become more of a deciding factor in the campaign for the Coal-Exit Commission, discussed in Case Study 1B – Lusatia/Lausitz' (Ibid. 17; see also Morton & Müller, 2016).

Assessment of success and key lessons for Ireland

Has the transition received local support? Is the plan hailed as a local, regional, national or international success?

Both success and failure during the long Ruhr transition deliver valuable lessons.

The transition was only indirectly related to climate action. Hard coal is still in use in power generation and industry production in Germany. In 2017, around 5,700 German workers produced around 3.7 million tonnes of domestic coal. However, in 2016, 45 million tonnes were imported, mainly from Russia, North and South America (Statistik der Kohlenwirtschaft eV, 2017a). Climate action became central to the Coal-Exit Commission (discussed in Case Study 1B on Lusatia/Lausitz).

In terms of managing a transition from a fossil fuel justly, the Ruhr shows that the phase-out of coal mining is possible, with no worker left behind, clear social benefits for a region and environmentally sustainable alternatives. The Ruhr is also an example of a just-in-time just transition policy that phased out fossil fuels in a socially responsible manner in keeping with the Paris Agreement requirement to keep emissions below 2 to 1.5 degrees Celsius (Oei *et al*., 2019: 13).

Many new companies have filled the gaps left behind by coal mining and energy-intensive industries, with a doubling of service jobs in the region (Galgoczi, 2014: 225).

There are still difficulties in the region. The unemployment rate in Duisburg, Essen, Gelsenkirchen and Dortmund was still roughly double the German average of 5.2 per cent in 2018 (Appunn, 2018).

For the Industrial Relations Research Centre, in light of the fact that the region has lost two traditional industries, which provided 70 per cent of the region's employment in the mid-1950s, 10 per cent is 'a remarkable achievement' (Sheldon *et al*., *2017:* 32), especially considering the unemployment peak of 15.1 per cent between 1978 and 1988. It is also argued that local structural adjustment policies

and processes have successfully prevented substantial population decline (Oei *et al.*, 2019: 11).

The following aspects have been crucial to the success of the Ruhr's decades-long structural adjustment, leading it to being used again and again as a template for a 'just transition'. The challenge is whether these learnings can be reapplied in the shorter time-frame required for climate action:

Consistent engagement by highest levels of government

Working in collaboration with one another, municipal governments, employers and unions, federal and state governments led, coordinated and funded the planning and implementation of structural change.

The federal and NWR state governments consistently faced severe external challenges and took ambitious action to tackle them. As opposed to an *ad hoc* minimalist approach that would provide only redundancies and welfare, action was taken at the outbreak of the industry crisis to develop alternatives for the region through top-down planning. This has enabled the development of resilience in the region and the ability to develop in anticipation of future crises, with the aim of heading off the human suffering that decline would have on the region.

High regional and local autonomy in Germany for municipalities and regional governments, coupled with substantial financing, was crucial to success. However, more room could have been made for community input at an earlier stage.

Heavy investment in supportive alternative infrastructure by the public sector

From the beginning, a collaborative, coordinated decision was made to invest heavily in supportive infrastructure, higher education and training.

New initiatives were inspired by skills audits that allowed the region to build on the strengths of existing activities, skills and institutions. This effectively fostered private-sector innovation and entrepreneurship.

The parties sought to ensure that sufficient decent work was available, including for the newly higher-skilled workers, but also sufficient skilled workers for that work.

Involvement through social dialogue of those worst affected

Notions of socially acceptable outcomes and corporate responsibility underpinned by the German tradition of 'social partnership' secured public acceptance for the transition. This involvement, dialogue, cooperation and transparency between governments, mining companies and workers led to consensus and legitimation for dramatic changes.

Avenues were provided for workplace consultation, upward feedback and pressure. Skills audits were conducted and retraining supports provided by all stakeholders in collaboration with regional universities and municipalities. There was also a growing use of community participation mechanisms, including some that became increasingly bottom-up, from both public and private sectors.

This ensured the delivery of policies designed to deliver high-wage, high-skills industries and jobs, maintenance of mine employees' employment through the transition, and substantial compensation for those induced to leave the labour market. It also reinforced social consensus.

Existing institutional dependence was finally broken with a new NRW state focus on 'sunrise technologies', and a more regional social dialogue approach that focused on increasing the innovation capacity of local government and therefore the wider region (such as ZIM and the IBA).

2.1.2   Case Study 1B – Phase-out of Lignite (Brown Coal) Mining and Coal-fired Power Generation in Germany

'Bóh je stworił Łužicu a čert je zaryl brunicu' (God created Lusatia and the devil buried brown coal underneath it)[10]

Figure 9: Lusatian/Lausitz districts in the states of Brandenburg and Saxony
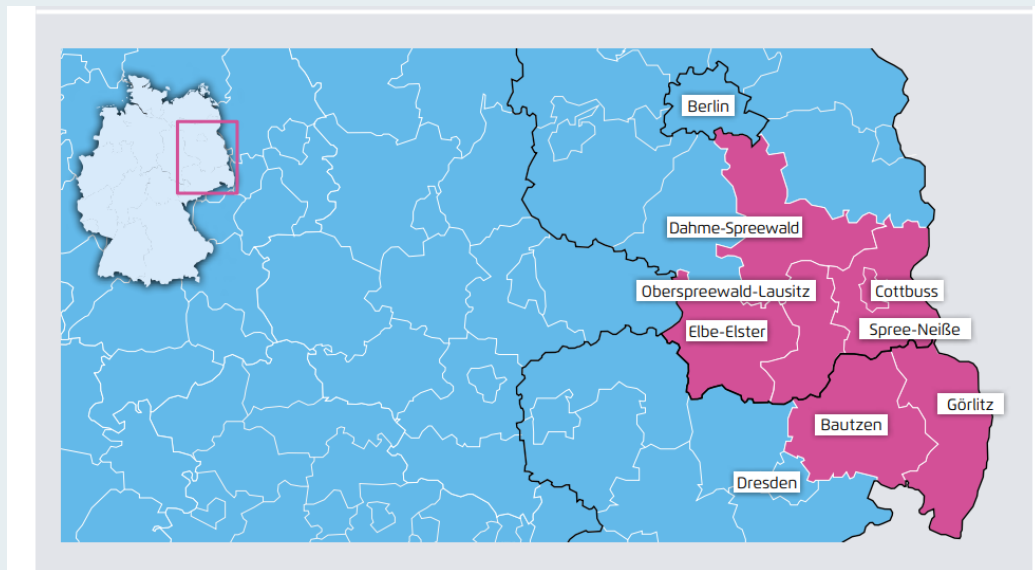
Source: Agora Energiewende, 2017: 9

This case study will examine Germany's second experience of transitioning workers and their communities away from fossil-fuel based employment – through the Coal-Exit Commission. It examines the transition through an analysis of the reliance of the Lusatia region on coal, and transition measures planned for the area. It focuses

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[10]   Sorbian saying (Vattenfall, 2012: 3). Sorbian is a minority language, spoken by a West Slavic group in Lusatia.

on restructuring efforts and proposals since 2016 that have been part of the increased pace of the *Energiewende.*

Lusatia is a region in transition, and the transition is in process; thus accompanying structural adjustment programmes are still in development.

Figure 10:   Lignite mining districts in Germany

OPEN-CAST MINES	RHINELAND DISTRICT	CENTRAL GERMANY DISTRICT	LUSATIA DISTRICT
	1 Garzweiler	4 Amsdorf	7 Welzow-Süd
	2 Inden	5 Profen	8 Jänschwalde
	3 Hambach	6 Vereinigtes Schleenhain	9 Nochten
			10 Reichwalde
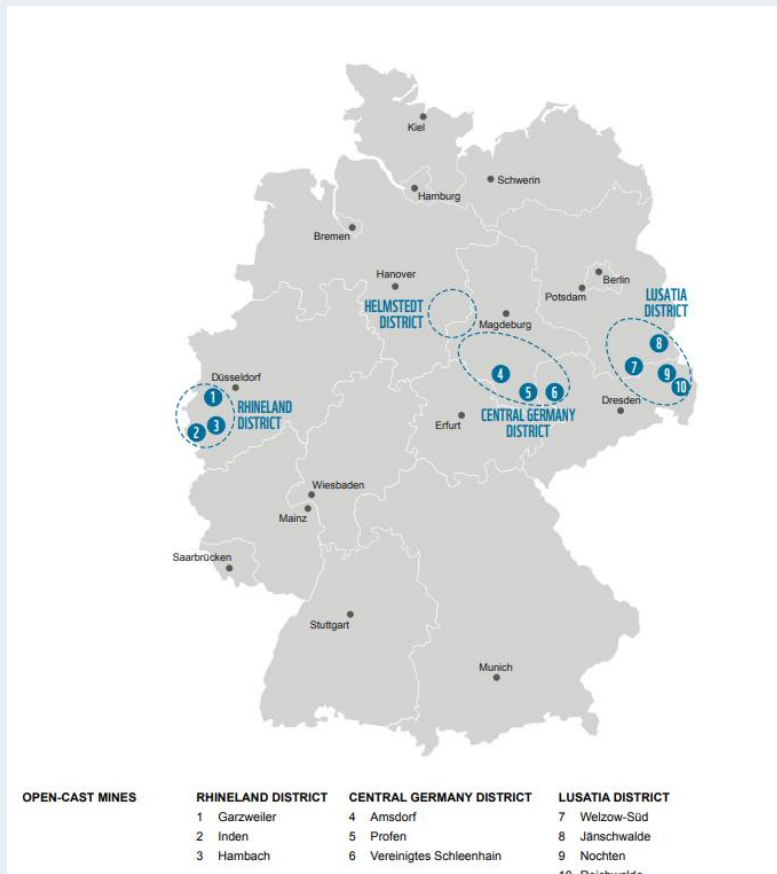
Source: Dahlbeck & Gartner, 2019: 50

The Institutional framework for transition

Was an overarching Just Transition Commission or other body used? What was its set-up?

Was the framework a forum for discussion, to give a voice to the community, to negotiate a shift, to act as a workplace relations commission?

What was the makeup?

How was 'community' or 'workers' defined in the model?

What supports were instituted to manage employment phase-out and by whom?

The German Coal-Exit Commission

In 2018, the German government tasked 'The Commission for Growth, Structural Change and Employment' (BMWi, 2019) (the 'Coal-Exit Commission') to formulate recommendations and set up a timetable for the phasing-out of lignite mining and the decommissioning of coal-fired power plants. This commission consisted of federal and regional politicians, employers, trade unions, NGOs and experts. It concluded its recommendations to the federal government in January 2019.

Background to the Coal-Exit Commission: climate action in Germany

Since 2000, the German government has been pursuing a programme of *Energiewende* that aims to have 80 per cent of the country's energy generated from renewables by 2050. This is to happen alongside the phase-out of nuclear power, which began after the Fukushima disaster in March 2011 and is to be completed by end 2022 under the Ethics Commission (BBC News, 2011; Morris & Jungjohann, 2016: 341). Germany's *Energiewende* is a point of pride for many German people (Morton & Müller, 2016: 7-8) and the country has gained much international recognition for climate action on its basis, regularly ranking first in the Green Economy Perception Index (Tamanini, 2014; Tamanini, 2016: 11).

Since 2007, Germany has committed to reducing its greenhouse-gas emissions by at least 40 per cent by 2020, 55 per cent by 2030, 70 per cent by 2040, and 80-95 per cent by 2050 (as compared to 1990 levels). These commitments have been upheld by every government since 2007 (Appunn & Wettengel, 2019a).

However, Germany has faced internal and external charges of hypocrisy as climate action has been stalling of late. The German government has admitted it is on track to miss its 2020 target (DW, 2019; Brauer *et al.,* 2018: 5; Wilkes *et al.*, 2018) and has been criticised as adopting a recent regressive stance on climate action (Simon, 2019).

The most highly cited example of this slowdown in climate action is Germany's persistently high levels of coal-fired power generation and lignite mining, despite the increase of renewables in the energy mix (Morris & Jungjohann, 2014: 4; Morton & Müller, 2016: 2).

Lignite or brown coal is the lowest rank of coal and a highly inefficient fossil fuel due to its high moisture content (Carr, 2018: 2). The process of lignite mining requires surface, open-cast mining that can have a dramatic impact on the landscape and has required the clearing of towns and villages in Germany (Ibid. 2; see also Mustata *et al.*, 2017; European Parliament, 2018). In 2018, lignite is still being produced in the Rhineland, Lusatia and Central Germany (Brauers *et al.*, 2018: 9).

Four of the five heaviest carbon-emitting power stations in Europe are lignite power stations located in Germany (Weber & Cabras, 2017: 1223). Due to its cheap extraction and transportation costs, lignite mining is relatively more commercially viable than hard coal (Ibid. 12). As well as competition from cheaper imports, the phase-out of hard-coal subsidies driven by the European Commission has been a contributor to the closure of coal mines and power stations across the EU

(European Parliament, 2014: 2019). German federal funding to assist in the closure of eight of Germany's oldest lignite mines has been cleared for state-aid funding as of May 2016 (European Commission, 2016).

Germany's largest producer of greenhouse-gas emissions (37.8%) is the electricity sector (BMU, 2018a: 9). While hard-coal mining has been phased out as of December 2018, it has been largely replaced by domestic lignite and by imported coal as investment in renewables has stalled.[11] In 2018, 35.4 per cent of Germany's electricity was powered by coal power plants and lignite coalfields (Agora Energiewende, 2019: 17). The remainder of electricity comes from renewables (34.9%), nuclear (11.8%) and natural gas (12.9%) (Ibid. 17).

These policy and legislative developments are framed by growing pressure from the German public for more climate action, and protests against further destruction of towns, villages and environmental heritage sites such as the primeval Hambach forest for open-cast mining (DW, 2018; Morton & Müller, 2016). According to a survey published in 2015, 68 per cent of Germans would like to see an end to coal by 2035 (Grieshaber, 2019; Rinscheid & Wüstenhagen, 2019).

Origins of the German Coal-Exit Commission

After the agreement to phase out hard-coal mining for cost reasons in 2007, focus turned to phasing out all reliance on coal for climate reasons. This necessitates the closure of lignite mines and the phase-out of coal-fired power generation (which is run on cheaper lignite and imported coal).

This shift was on the cards for some time as the German federal government introduced various top-down proposals to phase out mining, including a carbon levy and carbon pricing, which were unsuccessful and backtracked upon (Schulz & Schwartzkopff, 2018: 33). In November 2015 the German government announced the closure of eight lignite-fired power plants by 2018-2019, which was cleared for state aid funding by the European Commission in May 2016 (European Commission, 2016).

The success of the Ethics Commission agreement to phase out nuclear power in 2011 also led to calls from commentators and bodies for a 'structured dialogue process on the future role of coal' in Germany (Agora Energiewende, 2016). These included newspaper articles in *Süddeutsche Zeitung, Rheinische Post, Handelsblatt and Spiegel,* and reports from national bodies such as the German Advisory Council on the Environment and the German Association of Energy and Water Industries (BDEW) (Ibid. 1).

In January 2016, the think tank Agora Energiewende compiled the recommendations of these commentators into an influential study, *Eleven Principles for a Consensus on Coal* (2016), which recommended that a social dialogue body be

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[11]   The German drop in investment mirrors a global phenomenon. For more information see Sweeney & Treat, 2019, 2017.

established to reach a *Kohlekonsens* or 'National Consensus on Coal'. This would follow the model of the Ethics Commission (Agora Energiewende, 2016: 10).

Due to concerns that Germany's record on climate action is falling behind, and to ensure the 2030 targets are reached, the recent 2018-2020 coalition government agreement between conservatives (CDU/CSU) and social democrats (SPD) developed a Climate Action Plan 2050 framework (BMU, 2016) to fulfil Germany's pledge under the Paris Agreement (BMU, 2016a). This plan includes a commitment to set up a multi-stakeholder Commission for Growth, Structural Change and Regional Development, which will develop concrete measures to reach sector-specific climate targets in energy, building and transport 'targeting economic development, structural change, social compatibility and climate action' (BMU, 2016: 8). It is also to make recommendations on financing measures and 'the investments required in branches and regions affected by the structural change' (Ibid. 8). The climate targets that are developed for each sector under the Climate Action Plan are potentially to become legally binding under the country's first ever Climate Action Law (Appunn & Wettengel, 2019).

To meet the medium-term target of 55 per cent by 2030, lignite-based energy generation will need to be halved over the next 13 years (Agora Energiewende, 2018: 12). To reach the 2050 target, Germany's energy sector must be almost totally decarbonised within 35 years. These climate targets produce a particular challenge for Germany's already disadvantaged lignite-mining regions.

Composition of the Coal-Exit Commission

On 6 June 2018, Germany launched its Commission on Growth, Structural Change and Employment, otherwise known as the 'Coal-Exit Commission',[12] under the management of the Federal Ministry for Economy and Energy (BMWi) (BMWi, 2019).

The commission consisted of a total of 31 members and was headed jointly by Ronald Pofalla, former head of the Federal Chancellery, Dr Barbara Praetorius, an energy and environmental economist, and the former minister presidents of Brandenburg and Saxony, Matthias Platzeck (SPD) and Stanislav Tillich (CDU) (Wehrmann, 2018).

The commission included political representatives from lignite mining regions, scientists, representatives of the energy sector (such as the BDEW, the Federal Association of Energy and Water Management), coal and energy trade unions and ecological associations such as Greenpeace and BUND (Global Nature Fund Germany) and the coalition parties. The members of the commission worked on an honorary basis (Agora Energiewende, 2019: 20).

The plenary sessions were also attended by representatives from German states, eight federal ministries, and the Federal Chancellery (Ibid. 20).

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[12] The commission was originally called the '*Commission for growth, structural economic change and regional development*' but later changed the last aspect to 'employment' (Whermann, 2018).

The commission's work was supported in terms of content and organisation by an office attached to the Federal Ministry of Economics and Energy (Ibid. 20). The chair 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 (Ibid. 20).

Figure 11:   Interest-group representation in the Coal-Exit Commission (*without voting rights)
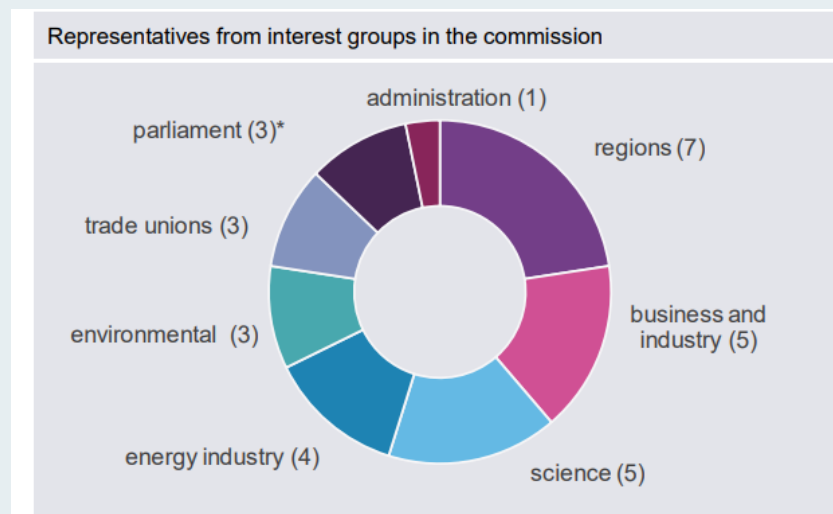
Source: Agora Energiewende, 2019: 20

Commission mission

Although the popular name of the commission was the Coal Commission or Coal-Exit Commission, it was tasked with a wider set of objectives related to overall structural change rather than coal directly, including with developing recommendations on three overarching objectives (BMU, 2018: 1-2):

- developing a social consensus on how government should fulfil national climate policy targets;

- managing the comprehensive restructuring of the affected coal regions; and

- securing a stable and affordable energy supply.

Full government cooperation and support was envisaged. The commission's official mandate and terms of reference opens with the German government commitment to 'create full employment and equal living conditions throughout Germany' (Ibid. 1). This is to be achieved through the government 'actively and fully engag[ing] with the structural change taking place in many sectors' (Ibid, 1).

In its written recommendations, the primary aims of the commission were to (Ibid. 1):

- **Agree and develop a roadmap and a deadline for the complete phase-out of coal-based power production**. This roadmap and deadline must be in line with Germany's 2030/2050 targets and national contributions to the Paris Climate Agreement. The roadmap and deadline will then form part of the Climate Action Plan.

- **Develop 'concrete prospects' and transition plans for 'future-proof jobs' and the economic future of lignite-mining regions.** This is to be done in collaboration between the German Government, Länder (or states), municipalities and economic stakeholders in the fields of transport infrastructure, skilled-worker development, entrepreneurial development, settlement of research institutions, and long-term structural development.

- **Identify strategies to reconcile climate action with economic stability.** This is to be done through developing a 'mix of instruments that combines economic development, structural change, social compatibility, social cohesion and climate action' and 'opening up prospects for sustainable energy regions'.

- **Identify investments required for structural change**. This would, first, involve exploring what existing government and EU funding instruments could be redirected to the issue and, secondly, what is required of an additional fund, comprised of government revenues 'in particular'.

Commission process

The Commission held a total of 10 plenary meetings. The initial consultations up to autumn 2018 solicited expert input on the topics of structural change, climate protection, security of supply, competitiveness and affordability (Agora Energiewende, 2019: 22).

Members of the commission travelled to regions that will be affected by the phase-out of lignite (*Mitteldeutsches Revier*, *Lausitzer Revier* and *Rheinisches Revier*) (BMWi, 2019: 7).

The second set of meetings involved concrete negotiations for the preparation of the final report and its recommendations. The plenary sessions were prepared in the two established working groups, *Structural Development & Employment* and *Energy & Climate* (Agora Energiewende, 2019: 22). Some negotiations lasted through the night, such as in the case of unions and mining companies agreeing on supports for workers (Groll, 2019).

The final report was finally adopted almost unanimously by the members of the commission in January 2019 (voting ratio: 27:1) and handed over to the federal government in February 2019 by the chair of the Commission (Agora Energiewende, 2019: 29).

Figure 12:   Commission process
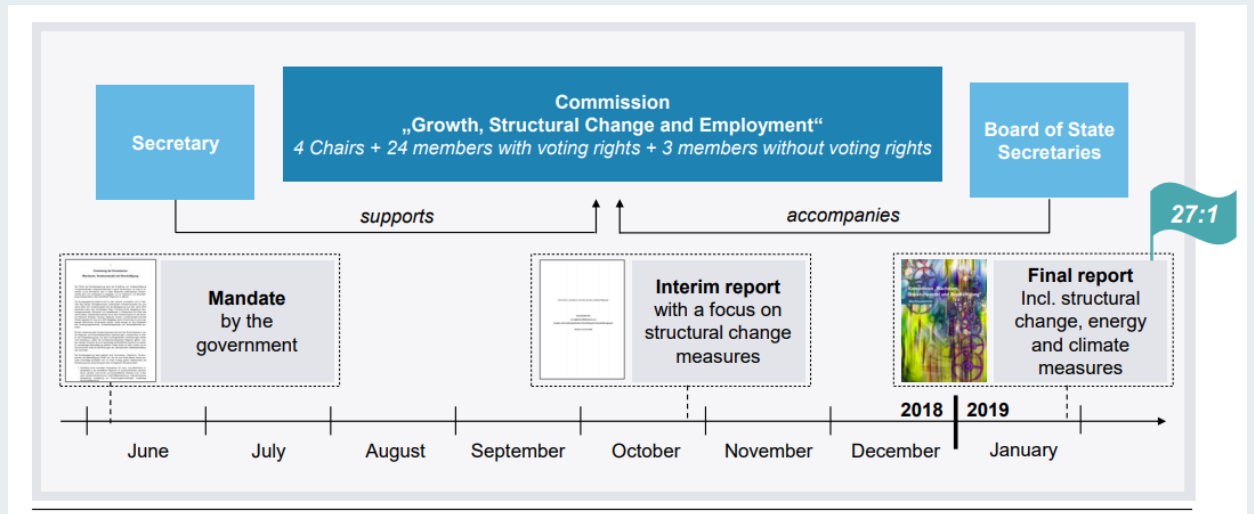
Commission recommendations

The final report was to be presented to the German government at the end of 2018 in time for COP24 (BMU, 2018), but was delayed until February 2019 (Groll, 2019). It stated that Germany should end coal-fired power generation by 2038, with an option to end it by 2035. The first step is to switch off 12.5 gigawatts of capacity by 2022 (Groll, 2019; BMWi, 2019: 64). To achieve this, the commission recommended:

- **Potentially no new plants or opencast mines:** 'If possible', no new coal-fired power plants should be connected to the grid and no new opencast lignite mines should be developed (Ibid. 71 and 63).

- **'Electricity price compensation'** for companies, private households and consumers so that the cost of phase-out is not passed on to consumers (Ibid. 63).

- **Compensation for power plant operators** if plants are 'mothballed' before they come to their natural end of life. The amount of compensation granted is to be determined in negotiations, or through competitive bidding (Ibid. 63).

- **An investment of mainly government funding of €40bn** over 20 years, with legislative backing. Chapter 5 of the report outlines *'Prospects for existing, new and future-proof jobs'* (Ibid. 73). The commission expects a total of €2bn a year in relief to be needed from 2023 onward (Ibid. 107). Annually, €1.3bn will be invested in infrastructure development, promotion of economic and innovation and the relocation of public bodies and research institutions to all four coal-dependent regions (Ibid. 103). A separate €0.7bn per year is to be made available by the federal government independently of the budget. Chapter 5 of the report includes project proposals which can be grouped as follows:

- o promotion of infrastructure expansion and acceleration;

- o promotion of public service measures (e.g. provision of a railway link from the rural district of Helmstedt to the regional centre of Wolfsburg);

- o economic promotion and development (e.g. Green Battery Park Euskirchen);

- o promotion of R&D, science and innovation (e.g. establishment of a mobility research centre at the Kerpen autobahn intersection) (Ibid. 89); and

- o labour-market policy, development of skilled workers (e.g. postgraduate studies in Intelligent Manufacturing at the Bautzen University of Cooperative Education).

- **Decentralisation:** In the short and medium term, federal government offices with a total of 5,000 employees are to be located in the coal regions by 2028 at the latest (Ibid. 97).

- **Fast-track procedures and processes** to access, deploy and ensure the effectiveness of financial resources, including a 'coal-region bonus' for transport infrastructure projects to speed up their implementation in the four mining regions (Ibid. 88).

- **Measures for employees**:

  - o As security for older employees in lignite mining (aged 58 and over), the commission recommends an adjustment allowance (Anpassungsgeld, APG) from federal funds to compensate for shortfalls prior to their pensions. There would be a similar provision for employees in hard-coal-fired power plants (Ibid. 98).

  - o Social security measures will be negotiated through further collective agreements, which will include measures to secure qualified employment through placement, compensation for wage losses, training and further education, etc. Whether the state or companies will bear the costs of these measures is as yet uncertain (Ibid. 115).

  - o 'Adjustment allowances' and compensation for pension losses were negotiated between unions and coal companies in the final round of the commission's negotiations. Negotiations included German Trade Union Confederation (DGB) board member Stefan Körzell, German services trade union (ver.di) board member Andreas Scheidt and IG BCE chairman Michael Vassiliadis (Groll, 2019).

- **Negotiation agreements**, including compensation payments, should be concluded with operators by 2022. These are then to be fixed by law (Ibid. 63).

Moving forward[13]

The conclusions of the commission are only advisory for Germany's government. Actual implementation of measures may ultimately deviate from what the commission recommends. However, the government is widely expected to follow the proposals due to its cross-party support and the fact that the commission represented a broad sample of the relevant societal, political and economic actors (Egenter & Wehrmann, 2019).

On the 29th of January 2020, the German federal cabinet adopted its draft law to allocate €14bn in grants to lignite mining regions until 2038, to implement the most urgent of the commission's proposals. This funding package is currently going before parliament (Wehrmann & Wettengel, 2020).

There is an additional €26bn on the way for other measures such as moving government research and development offices to affected regions. The entire package is expected to amount to €40bn (Schulz, 2019).

Figure 13:   Commission recommendations
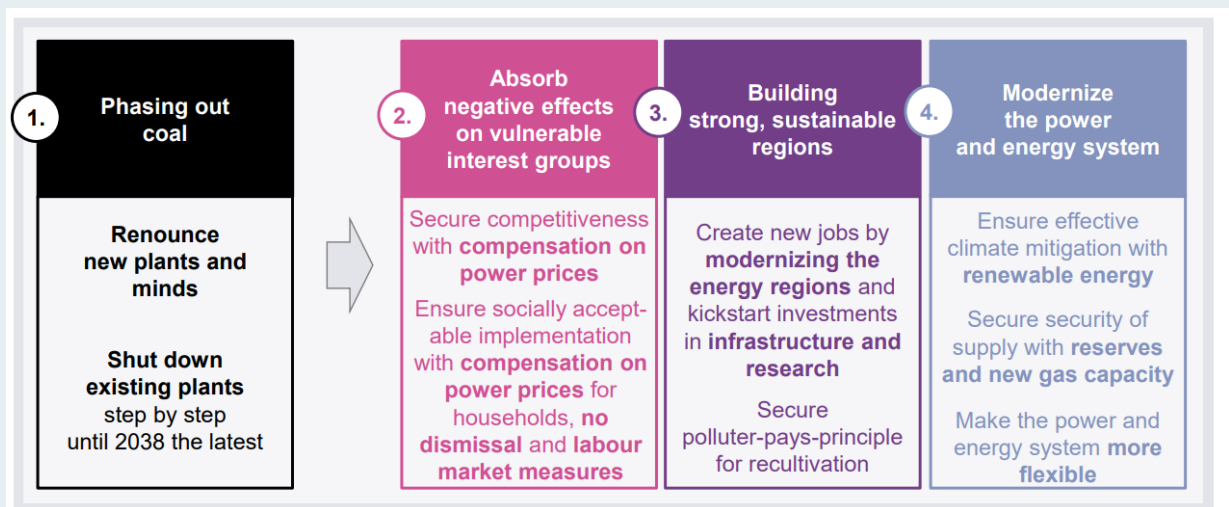
Source: Agora Energiewende, 2019: 20

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[13]   This is a transition in progress and so facts and figures may change. Last updates were made on 12 December 2019.

Critique

The Coal-Exit Commission's agreement to phase-out lignite mining and hard coal-fired stations by 2038 has been criticised by climate organisations as not being in line with the Paris Agreement's 1.5-2°C target (Groll, 2019; Climate Analytics, 2019). To meet the Paris Agreement, Germany would need to phase out both hard-coal and lignite consumption in the energy sector by 2030, well before 2050 (Climate Analytics, 2019). As previously stated above on P.38 Germany is now the only EU country with a coal exit date after 2030 despite being a relatively wealthy Western country with a greater responsibility to mitigate climate change.

Groll (2019) points to studies that suggest a shutdown of a large proportion of generation capacity in the 2020s and a complete phase-out can be achieved at the earliest by 2025 and at the latest by 2040, with nuclear phase-out.[14] The German public also supports the commission's earlier phase-out date of 2035 (Grieshaber, 2019; Rinscheid & Wüstenhagen, 2019).

A major criticism of the commission has been the high compensation granted to coal companies for potential profits forgone, and if their running costs increase when cheap lignite is phased out (ClientEarth, 2019; correspondence with the Ecologic Institute). The argument is that this institutionalises a 'compensation culture' for fossil-fuel companies and a very expensive transition that cannot be afforded by many countries, particularly not those in the developing world (Climate Analytics, 2019).

The power plants were already being phased out by lignite companies such as Vattenfall whose Chief Financial Officer, Ingrid Bonde, stated before the establishment of the Coal-Exit Commison that '[t]he lignite operations are having a tough financial time. That was the rationale for us divesting it' (Wynn & Julve, 2016: 11; Oei *et al.*, 2017: 69).

Local communities and environmental groups are also unhappy with the lack of commitment to preventing further levelling of villages or landscape features. As noted above, dissenting opinions were attached to the Coal-Exit Commission on the basis of climate (BMWi, 2019: 117) the levelling of further villages and the Hambach forest for open-cast mining (Ibid. 121). The Hambach forest in particular has had symbolic importance during the talks (DW, 2018; see Morton & Müller, 2016), yet no clear commitment was given to its preservation, the commission considering its protection to be only 'desirable' (BMWi, 2019: 71).

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[14]   Brauers *et al.* (2018: 17) state that much of the reason for the slow phase-out is reliance on Carbon Capture, Transport, and Sequestration (CCTS) technology. They exclude the possibility of CCTS technology in the power sector from their analysis of Germany's energy system, as there is limited storage potential, and opposition from civil society against large-scale CCTS infrastructure. In addition, and especially with the recent cost reductions in renewable technologies, CCTS in the power sector is economically unattractive.

Focus on the phase-out of lignite mining and coal-fired power generation in Lusatia: historical background

Social, economic and environmental history of the area; e.g. where the mine came from, how many workers were there previously and why, set-up of the company and surrounding ethos.

What is the role of fossil fuels (existing and new)?

What activities are in the area? Is the area diverse in its income or heavily reliant on fossil fuels?

Lusatia (*Lausitz*) spans the German-Polish border, though most of it lies in eastern Germany. The German part of Lusatia is under the states of Brandenburg and Saxony. It is very rural, with only 1 million inhabitants; the largest city and economic centre, Cottbus, has a population of 100,000 (Wehnert *et al.*, 2017: 29). The region's population density of 99 inhabitants per square kilometre is well below the German average (230 inhabitants/km²) (Zukunftswerkstatt Lausitz, 2019). The region is home to a Slavic minority, the Sorbs (see Carr, 2018; Parliament of Europe, 2018; Council of Europe, 2005; Mustata *et al.*, 2017: 24).

Fossil-fuel reliance

Lignite mining has occurred in Lusatia since 1860, becoming industrialised in the 1900s. After WWII it became a nationalised industry under the GDR. Lignite constituted the energy independence of GDR as East Germany was cut off from the West's hard-coal regions (Mustata *et al.*, 2017: 33).

Figure 14:   The Lusatia (Lausitz) region

The region has already undergone much restructuring, with the reunification of West and East Germany. The dramatic and sudden integration of East Germany into the West was a difficult transition for many East Germans (The Economist, 2019). Work in lignite mining was a source of pride (Morton & Müller, 2016: 5) as it powered eastern Germany, but reunification and privatisation in 1989 meant greater competition, with higher productivity levels in the West (Appunn, 2018a). This led to a 90 per cent drop in employment within 10 years (Schwartzkopff & Schulz, 2015: 14). In 1990, 80,000 people worked in the Lusatian lignite industry, dropping to 20,000 by 1995. Employment dropped again to 7,000 by 2000, a number at which it has remained relatively stable (see Figure 3) (Schwartzkopff & Schulz, 2015: 14).

Today, the remaining four mines and four power plants in Lusatia are owned by Czech energy company LEAG, which operates four open-cast mines: Jänschwalde, Welzow-Süd, Nochten and Reichwalde (Appunn, 2018a; see also DIW, 2017: 70). According to LEAG, 8,000 employees work directly for the company (LEAG, 2019). A 2018 publication by the Rhineland-Westphalia Institute for Economic Research (RWI) calculates that in Lusatia 13,245 jobs are directly or indirectly related to the brown-coal sector (Dehio & Schmidt, 2018: 5).

Figure 15: Employment (direct) in Lusatian lignite industry
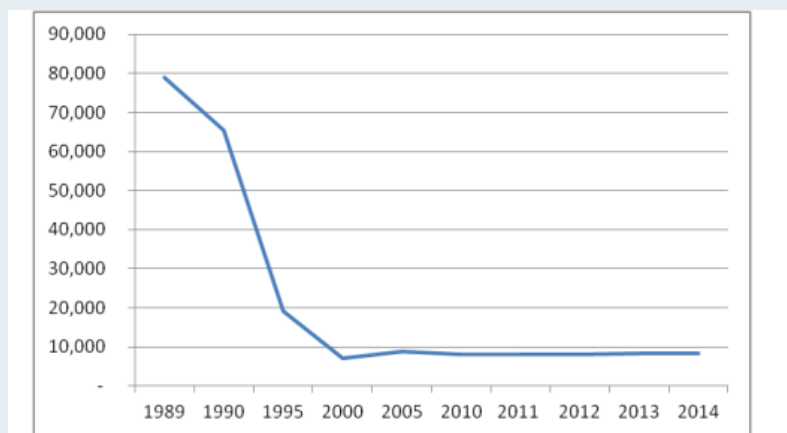
Source: Schwartzkopff & Schulz, 2015: 14

While the phase-out of lignite mining will affect the central German and Rhenish mining regions also, Lusatia will be worst affected (Agora Energiewende, 2018: 8). Lusatia is the second-largest of the three German lignite regions in terms of output as well as power-plant capacity, behind the Rhineland lignite area (Schwartzkopff & Schulz, 2015: 6). Although its industrial base has diversified into the chemicals, food, glass, mechanics, metallurgical, plastic and textile industries (Schulz & Schwartzkopff, 2018: 12), the electricity generated in Lusatia's lignite-fired plants remains its most important export (Agora Energiewende, 2018: 8). The scarcely populated agricultural state of Brandenburg, for example, surrounds Berlin and is a

major power supply for the capital. The local feeling that these regions are in decline, despite being providers of this energy, is said to have been seized on opportunistically by far-right parties in recent elections (Weisskircher, 2019; Staudenmaier, 2017).

Economic prospects

At 9 per cent, unemployment in Lusatia is above the German average of 6.7 per cent. However, this should be seen in the context of the eastern German average of 9.8 per cent and the 2004 rate of above 20 per cent (Schwartzkopff & Schulz, 2015: 6-7). Unemployment in the region `has been falling for a decade overall. The region's employment is mainly in small to medium enterprises.

By 2030, the total number of people employed in Lusatia is predicted to decrease by 36 per cent and economic output by 0.9 per cent (Ibid. 6-7). The state of Brandenburg is predicted to lose around a third of its labour force between 2015 and 2040, and the average age to rise sharply during the same period, with similar figures for Saxony. The region is also recovering from demographic losses experienced during the early 1990s (Agora Energiewende, 2018: 17).

Direct jobs in the energy sector in Lusatia are of high quality compared with other employment prospects in the region (DIW Berlin *et al.,* 2019: 70), with gross salaries of €47,716 in Brandenburg and €49,820 in Saxony in 2013. This compares to a national average wage of €31,578 in 2013 (Schwartzkopff & Schulz, 2015: 8).

However, indirect jobs in the sector face strong cost pressures from the lignite industry and have high levels of subcontracting and temporary work, leading to lower-quality pay and conditions. For example, Vattenfall supplier Emis Elektrics, which provides specialist power-plant electronics services, paid an average gross wage of €30,625 in 2011 to its c400 employees. The industry rate is €35,200. The German metal workers' trade union IG Metall reported, with respect to suppliers in the metal and electrical industry, 'that only just under a third of the workforce was paid according to collectively bargained wage agreements or in line with agreements based on them' (Schwartzkopff & Schulz, 2015: 10)

All this leads to further issues for younger people in the region as roughly two-thirds of direct employees in the lignite industry in 2018 are over 46 years old (Ibid. 7); thus, the drop in employment in lignite industry has led to persistent emigration of skilled young people from the region (IWH, 2019). Since 1995, the population has shrunk by 18 per cent, from 1.43 million to 1.17 million (Ibid. 7). Local research and development is also weak (Ibid. 6).

However, less than 5 per cent of all employees in Lusatia work in the mining and energy generation sectors. Therefore, the region is by no means dependent on these sectors alone (Agora Energiewende, 2018: 18). New jobs have been coming to the area and GDP growth has been increasing in Brandenburg and Saxony (Ibid. 15).

Environmental impacts

The area suffers from severe environmental impacts caused by mining (see *Mustata et al.*, 2017: 33). Lignite is close to the surface and is mined in an open-cast manner. So far, opencast lignite mining has affected 179,490 hectares of countryside in Germany. Since 1924, 313 settlements have been lost to lignite mine expansion, including 136 villages in Lusatia alone (Appunn, 2019). Since 1945, between 25,000 and 30,000 citizens have been relocated (Schwartzkopff & Schulz, 2018: 13) (see section below, 'Key interventions').

Air and waterborne pollution caused by open-cast mining and power-station emissions are also an issue for people living in the area. Reclamation of lignite-processing sites can take as little as five years in terms of creating artificial lakes, or as long as 100 years to remediate groundwater contamination (Carr, 2018: 3). Under section 55 of the German Federal Mining Act (Bundesberggesetz, BBergG), lignite mine operators must set aside a fund to rehabilitate the area after the depletion of the mine (Oei *et al.*, 2017: 66). Parts of Lusatia have been transformed into new manmade lake districts. This is deemed to be an ecological success (Mellgard, 2014; Schwartzkopff & Schulz, 2018: 51) although there are still some issues with sulphites and mining waste (Ibid. 55).

The scale of the transition envisaged

What did the transition aim to do?

Was the focus on redundancies, upskilling, retraining, wider community development or a more expansive whole-of-government/whole-of-economy approach?

Did the transition form part of an EU-wide, regional or national transition?

Federal and state initiatives are in place to assist the region in diversifying beyond lignite mining and power generation. These include Innovation Region Lausitz GmbH (IRL) and Economic Region Lausitz GmbH (WRL). The Lausitz Future Workshop (Zukunftswerkstatt Lausitz) is a project of WRL. Together with experts, business companies, associations, scientists, trade unions and representatives of the civil society in the region, it aims to develop consistent guiding principles for Lusatia by 2020 that will then be implemented by local government/businesses/community in a manner similar to the IBA. These principles also inform the work of the Mining Area Enterprise Programme (Unternehmen Revier) (BMWi, 2019: 100, footnote at 76).

However, the Coal-Exit Commission has brought about a final end to coal as a future for the region of Lusatia, as part of the German *Energiewende* from 2000 to transition to a low-carbon, nuclear-free economy (Brauers *et al.,* 2018: 11). A comprehensive transition for the region is outlined in Chapter 5 of the Coal-Exit Commission's report *'Prospects for existing, new and future-proof jobs'*, outlined above (BMWi, 2019: 73).

As noted above on P.13, draft proposals of the Coal-Exit Commission were heavily criticised by political representatives from lignite regions in November 2018 'for focusing too much on emissions reduction and too little on the economic prospects of people living in mining regions' (CLEW, 2018a). To allay such fears, on completion

of the Coal-Exit Commission the German Federal Government chose to commit in legislation to major financial support for the regional development of alternatives in affected regions as a matter of priority, delivered through local 'trusted institutions' (BMWi, 2019: 103). This draft legislation, '*Strukturstärkungsgesetz Kohleregionen*', was undertaken before any plant closures or further climate targets as a trust-building exercise and deliberate display of commitment (Wehrmann & Wettengel, 2020). Regional governments in eastern coal mining states later welcomed the commission's final proposals, which committed €40bn to rejuvenating the regions, along with major regional development mechanisms (Wettengel, 2019).

The role of government

What was the role of government in the transition? What institutions were recommended and what did government set up?

Did the government have a strong role or a hands-off approach?

The role of local authorities

Did the local authority/regional body:

- *Make an increase in good jobs the clear test for local industrial strategies?*

- *Use their convening power to bring together unions, employers and citizens to develop a clear vision and plan for their area?*

- *Work together with other key public-sector bodies to aggregate their purchasing power in support of local economic development?*

Role of different actors

What roles did businesses, trade unions, local communities and NGOs have in the transition? What were their concerns? Did they have campaigns, certain asks or allegiances that may have helped or hindered transition?

Skills

What structures or supports were put in place to:

- *Collect data on skill-sets in the closing plant and surrounding area, who collected this data, was it shared, and how?*

- *Match skills with other enterprises/organisations in the area/region, etc?*

- *Support workers and the community on social welfare or special employment measures between jobs?*

- *Contact and engage regional (or new) educational institutions in the transition?*

- *Build skills/enterprises for low-carbon jobs (from renewables to music, etc)?*

- *Encourage enterprise and new thinking?*

After reunification, the German federal and regional government had to cope with a rapid restructuring of the Lusatian coal industry during which 90 per cent of employment was lost within 10 years (Schwartzkopff & Schulz, 2015: 14) and 60,000 jobs within five years (Ibid. 10). West Germany undertook a major financial support

programme to assist East Germany's integration (The Economist, 2019). The federal and regional governments played a direct role in keeping coal companies afloat, supporting social welfare programmes and setting up foundations to manage environmental rehabilitation of the region and help with local job-creation (Wynn & Julve, 2016: 17). Germany's lignite regions also received nearly €14bn in support from 2013-2018 (CLEW, 2018).

Due to the recommendations of the Coal-Exit Commission, the region now faces a complete phase-out of lignite mining and the decommissioning of coal power plants, with a longer – though climatically controversial – time period of 35 years.

Post-reunification

A number of initiatives were taken after reunification to develop Lusatia. These include the setting up of the *Lausitz [Lusatian] and Central German Mining Administration Company* (LMBV) in 1991 to decontaminate the GDR's former opencast mines and rehabilitate the landscape after mine closures (Wynn & Julve, 2016: 17; OECD, 2017: 25). The company was initially a job-creation scheme financed by the federal German government and federal states (Ibid. 17). Parts of Lusatia have been transformed into new manmade lake districts. This has had mixed results as some lakes still suffer from pollution due to sulphites and mining waste. However, other lakes are developing well from a biodiversity point of view. In 2018, 417 people worked under the LMBV (Federal and State Government Office for Lignite Rehabilitation, 2019).

After reunification, other initiatives launched to ease social restructuring were worker protection schemes that included:

- early retirement scheme for those over 55 (Brauers *et al.*, 2018: 25);

- relatively high levels of social security including welfare (Botta: 38); and

- a social plan drawn up with lignite mining companies to manage job losses, including part-time working arrangements to facilitate job searches, and on-the-job training opportunities in the technology and management sectors to facilitate moving to new industries (Ibid. 38).

Federal and state governments also aimed to keep as many companies afloat and operating in the region as possible through subsidies. The takeover of the Vereinigte Energiewerke (VEAG) energy utility and the Lausitzer Braunkohle (LAUBAG) lignite company in the early 2000s by the Swedish state company, Vattenfall, was facilitated by political decision-makers through a targeted incentive scheme (Oei *et al.*, 2017: 3, footnote 2).

Today

Lusatia is described as lacking the research and development supports needed to develop a new economic profile for the region. A number of studies propose economic restructuring plans for the region, from Die Linke (Kutzner, 2014), a coalition of environmental NGOs including Greenpeace and WWF (Mustata *et al.*, 2017), Agora Energiewende (2018), E3G (Schwartzkopff & Schulz, 2015), Greenpeace (2015) and (in a joint report) the Institute for Sustainable Development

and International Relations (IDDRI), DIW Berlin and Climate Strategies (Brauers *et al.*, 2018).

Federal government Initiatives

The 2018-2021 CDU/SDP coalition agreement has a strong commitment to regional economic development as part of the German constitutional requirement of creating equal living conditions in all sub-regions.[15] The coalition agreement also commits additional funding of €1.5bn for 'regional structural policy / structural change linked to coal policy' (Davies, 2019: 16).

Two new programmes have been established by the federal government to support Lusatia and other lignite mining regions (for more information, see BMWi, 2019b):

- The Mining Area Enterprise programme (*Unternehmen Revier*) under the existing 'Entrepreneurial Regions' innovation initiative was launched in November 2017, with €4m annually for ten years, targeted on the four main lignite regions, and coordinated by the Federal Ministry for Economic Affairs and Energy (BMWi). Each region has developed an investment strategy, and will allocate funds via competitive calls for new ideas. (See Dahlbeck & Gärtner, 2019: 51; BMWi, 2019a.)

- The Commission on Growth, Structural Change and Employment, launched in June 2018, proposed, in its final report in February 2019, supporting structural change with goals of economic development, social responsibility and climate protection (BMWi, 2019).

Established regional development programmes were also extended, starting from 2020, to cope with the coal exit plan:

- The Coordination Framework of the Regional Joint Task or *Verbesserung der regionalen Wirtschaftsstruktur* (GRW) was revised in August 2017 to allow funding for environmental state aids, some energy infrastructure, wider support for training, R&D and broadband, and guarantees for large firm projects (Eurofound, 2018).

- The eligible area for the federal Innovation Skills East (*Inno-Kom-Ost*) programme, which funds R&D in non-profit, non-university R&D institutes, was extended to coincide with the GRW (previously it targeted only eastern Länder).

- The *'WIR! – Change by Innovation in the Region'* pilot programme is to be extended. It was launched in 2017 by the Federal Ministry of Education and

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[15] Article 72, paragraph 2 of the Constitutional Law formulates a statement on spatial equilibrium, thereby conferring on the federal level the authority to act or legislate *'if and to the extent that the establishment of equivalent living conditions throughout the federal territory or the preservation of legal or economic unity in the national interest require regulation by the federal law'*. Separate to these coal-region specific initiatives there also a Commission on Equivalent Living Conditions, with representatives from federal ministries, Länder and local authority associations. This commission is tasked with making recommendations on increasing the fair distribution of resources and opportunities across all inhabitants and regions, and will report by the end of 2020. It has six working groups focused on: local authority debt; business and innovation; spatial planning and statistics; technical infrastructure; social services and employment; societal participation and cohesion.

Research (BMBF) under the 'Entrepreneurial Regions' umbrella (Wirtschaftsregion Lausitz, 2019). It promotes regional innovation and interdisciplinary knowledge transfer for all structurally weak regions. The pilot supports all weak regions in general from 2020 (not just lignite) but the Coal Commission has asked for it to be extended and increased for the duration of the coal transition (BMWi, 2019: 103).

- On 10 July 2019, an all-German subsidy system for structurally weak regions was established, to take effect from January 2020. This bundles existing structural programmes and extends them beyond their mainly eastern German focus (BMWi, 2019c).

Under the Coal-Exit Commission, a number of recommendations for federal actions have been put forward for the region. These include:

- **Job guarantees for employees and apprentices**, including binding collective agreements between the two sides of the industry, e.g. to ensure placement in skilled jobs and compensation for lower wages, and provide apprenticeships and further training, compensation for financial losses or early retirement, assistance in obtaining adjustment benefit, and compensation for pension deductions or other early-retirement factors. An adjustment benefit for lignite (APG-B) is to have legislative backing (BMWi, 2019: 97-98).

- **A comprehensive legislative package** to provide a binding framework for measures to support structural transition and the associated funding in the form of interstate agreements, accompanying laws and other instruments. This should also include legislation for early public participation (Ibid. 102 and 91).

- **Institutions that implement the transition should be trusted institutions,** familiar with local circumstances, based in the affected regions and therefore embodying the political will to promote successful structural development. They should remain in the region for the duration of the task, i.e. for decades (Ibid. 103).

The German federal cabinet has adopted a draft law to allocate €14bn in grants to lignite mining regions until 2038. This is to implement the most urgent of the commission's proposals. This funding package is currently going before parliament (Wehrmann and Wettengel 2020).

There is an additional €26bn on the way for other measures such as moving government research and development offices into affected regions (Ibid). These are the 'trusted institutions' recommended by the Coal-Exit Commission, familiar with local circumstances, based in the affected regions for the duration of the task and therefore embodying the political will to promote successful structural development (BMWi, 103). The entire package is expected to amount to €40bn (Schulz, 2019).

The *'Unternehmen Revier'* or Mining Area Enterprise programme (See Box 3).

Support for mining companies

In November 2015 the federal government announced the closure of eight lignite-fired power plants by 2018-2019 under a 'standby capacity reserve' programme (Wynn & Julve, 2016: 22). These plants were some of the oldest and most polluting in Germany, owned by Vattenfall (now Czech company EPH and PPF Investments under the company LEAG), RWE and Mibrag. The plants were selected from three separate lignite mining regions to minimise socio-economic impacts and from three different grid balancing areas to minimise grid impacts (Ibid. 22). State aid clearance was given by the European Commission in May 2016 (European Commission, 2016), enabling the government to compensate power-plant operators for forgone profits. Two Lausitz lignite power plant units previously owned by Vattenfall (now LEAG), Jänschwalde units E and F will close, supported by around €555m in government funding (Wynn & Julve, 2016: 23).

Further compensation measures were recommended by the Coal Commission (BMWi, 2019: 63), which are currently being debated, as noted above.

Regional government actions

In June 2017 the state governments of Brandenburg and Saxony published a white paper, *Gemeinsam für die Zukunft der Industrieregion Lusatia* ('Together for the Future of the Lusatia Industrial Region') (Agora Energiewende, 2018: 14). The paper observes that globalisation, international competition and environmental policies have all influenced the economic prospects of the region and 'serve to hasten structural change' within it (SPD Brandenburg, 2018).

The state government of Brandenburg has an Energy Strategy 2030 but has postponed the updating of this strategy due to the Coal Commission. The state produces the most power from renewables per inhabitant among all German states and has won the Guiding Star (*Leitstern*) award for renewable energy three times in the last few years (Eriksen 2019; Heinbach *et al.,* 2015).

In Brandenburg, per capita employment in the renewable energy sector (at 18.8 per 1000 employees) is approximately twice as high as in Saxony, where the figure is only 9.3. However, a majority of these jobs are not located in Lusatia. Ifo-Institute (2013) estimated the employment multiplier of the wind-turbine manufacturer Vestas in Lusatia as 1.5, and of the lignite industry as 2 (in Schwartzkopff & Schulz, 2015: 8).

Local authority actions

The six local authority districts of Cottbus City (Chóśebuz), Dahme-Spreewald, Elbe-Elster, Oberspreewald-Lausatia, Spree-Neisse and Görlitz have come together to develop strategic concepts for the region and its 235 municipalities under the project *Zukunftswerkstatt Lausitz* or 'Future Workshop Lausitz'. This is under the federal and regional Brandenburg and Saxony governments' *Verbesserung der regionalen Wirtschaftsinfrastruktur* or 'Programme for the Improvement of the Regional Economic Structure'. This will be funded by the commission's recommended €40bn regional programme (BMWi, 2019: 100, footnote at 76).

Local authorities are fragmented in the Lusatian region as they've been resettled a number of times due to open-cast mining. This has led to a lack of local initiatives

and a feeling of disempowerment among local citizens (European Parliament, 2018: 23).

Non-governmental actions/Business associations

One local non-governmental initiative that has been established since the announcement of plant closures in 2016 is the *Innovationsregion Lausitz GmbH*, which aims to diversify the Lusatian region. The programme involves initiatives by a variety of business associations, as well as from the Cottbus-Senftenberg Technical University in the state of Brandenburg (BMWi, 2019: 54, 100, footnote at 76).

The presence of key actors or interventions

Were there any key events that shifted debate?

The European Union

The European Commission recently developed the EU Coal and Fossil Fuel Regions in Transition Initiative (European Commission, 2019a). Its purpose is to explore concrete ways by which the EU can provide support (e.g. funds, technical expertise, innovation support), to facilitate the transition of highly affected regions. This focus on coal phase-out has led Germany to fall behind on climate action as Germany and Poland are two of the largest coal consumers in the EU (Simon, 2019). Germany's Coal-Exit Commission has committed to a final phase-out date of 2038. However, the rest of EU has planned to phase-out coal-fired energy production by 2030. As of April 2019, six member states were already coal-free (Climate Analytics, 2019).

OECD and internationally

A discussion on the future of coal is also emerging internationally. There are indications of a global momentum towards policies for the phase-out of coal. Coal phase-out is seen widely as a 'low-hanging fruit' in decarbonisation efforts towards a net zero-carbon economy by 2050. Germany is a member of the Powering Past Coal Alliance, which includes 30 governments (of these 11 are EU member states), 22 provinces and cities, and 28 transnationals, which pledged to phase out coal by 2030 (Powering Past Coal Alliance, 2016).

Public opposition and protest

Morton and Müller (2016) detail the complicated situation of Lusatia, where concepts of *'heimat'/home, history and community* are interpreted differently within the community (Ibid. 5). Conflicts have arisen between those who support the coal industry and the need for employment in a region suffering from decline, those who want the removal of towns and villages to end, and those who support Germany's 'ecological modernisation' and phase-out of coal under the *Energiewende*.

Protests have occurred in support of both the quick and the slow phase-out of lignite mining.

As described on pages 15 and 83 the Coal-Exit Commission's phase-out of lignite mining was initially heavily criticised by political representatives from lignite regions.

Since 1924, 200 settlements have been destroyed for open-cast mining across Germany, with the second-largest number in Lusatia regions populated primarily by the Sorbian minority (84 settlements) (Mustata, 2017: 36). Around 26,000 people have been forced to resettle to make way for the mines (Carr, 2018: 2).

Village removals have led to opposition in Lusatia. Before reunification, protestors faced repercussions such as prison terms (Weber & Cabras, 2017: 1228; Mustata, 2017: 26). As an example of repercussions, in 1994, major protests occurred with the planned extension of the Jänschwalde lignite mine to the Sorbian village of Horno. Several court cases to overturn the decision were lost and those resisting were dispossessed in 2004 (Weber & Cabras, 2017: 1227).

Today, seven settlements are still at risk in the Lusatia region. Mines planned for expansion include the Nochten 2, Welzow Süd Teilfeld II, Jänschwalde Nord, Bagenz-Ost, and Spremberg Ost surface mines (DIW Berlin, 2017: 65). Communities have expressed anxiety about the uncertainty of the future of their region and the difficulty in preventing emigration (European Parliament, 2018: 4, 23; Morton & Müller, 2016: 9). This has provoked opposition to mining in the local area. The issue has been the subject of a European Parliament petition process, with MEPs travelling to the region to interview stakeholders and examine the impact on the Sorbian Slavic minority in particular (see Carr, 2018; European Parliament, 2018).

As well as villages, environmental damage has been extensive. One example of this is the removal of Hambach forest to make way for mining, which has provoked resistance. The protest has been reported widely in national and international news outlets (DW, 2018; Morton, 2014). One aspect of these stories is how coal 'threatens Germany's environmental image' (Ruiz, 2018).

Trade unions

In the region, trade unions have strongly opposed the closure of lignite power plants and mines because these workplaces are strongly unionised (over 80 per cent union members) and their 20,000 workers have high wages and good conditions. By contrast, jobs in renewable energy in Germany, while much more numerous (over 330,000), do not have the same high pay or quality conditions as the fossil-fuel sector. German unions that support the transition have responded with calls for collective bargaining arrangements in renewable industries to secure high-quality jobs and pay (Heilmann, 2018).

Protests organised by the trade union movement in lignite-mining regions pressured government into setting up a just transition approach under the Coal-Exit Commission (Wettengel & Appunn, 2018). The trade union movement negotiated strong structural adjustment supports during the Coal-Exit Commission's meetings, which contributed to regional social acceptance of the phase-out (Groll, 2019).

Figure 16:   Mines planned for expansion (in red)

Legend:

Mine number from legend	Name of the mine	Size of the mine	Number of displaced households
1	Jänschwalde	6 015 ha	5 villages
2	Jänschwalde Nord	3 100 ha	900 persons
3	Welzow Süd I	11.200 ha	17 villages
4	Welzow Süd II	1 900 ha	810 persons
5	Nochten I	No data	No data
6	Nochten II	1 200 ha	1700 persons
7	Garzweiler I	7 200 ha	44064 persons Garzweiler I + II
8	Garzweiler II	3 800 ha	As above
IN TOTAL		**23 226,2 ha**	**22 villages + 47 474 persons**

Source: Mustata *et al.*, *2017:* 39

Timescale

How long did the transition take?

Is there a timeline for when jobs must be replaced, when certain community supports must be in place, when the plant will shut down, when redundancies will be offered?

Is there a strong or weak carbon phase-out plan? Is that plan in keeping with the EU, Paris and IPCC 1.5C trajectories?

The transition for Lusatia is to take place over a period of 30 to 35 years (DIW Berlin, 2017: 74). The final report of Germany's Coal-Exit Commission states that Germany should end coal-fired power generation by 2038, with an option to end it by 2035. The first step is to switch off 12.5 gigawatts of capacity by 2022 (Groll, 2019; BMWi, 2019: 64).

Critics have stated that the Coal-Exit Commission's agreement to phase-out lignite mining and hard coal-fired stations by 2038 is not in line with the Paris Agreement's 1.5-2°C target (Groll, 2019; Climate Analytics 2019). A number of dissenting opinions were attached to the Coal-Exit Commission on this basis (BMWi, 2019: 117). As previously noted, Germany must phase out both hard coal and lignite consumption in the energy sector by 2030, well before 2050 in order to meet the

Paris Agreement (Climate Analytics 2019). Groll (2019) points to studies which suggest a shutdown of a large proportion of generation capacity in the 2020s and that a complete phase-out can be achieved earliest by 2025 and at the latest by 2040, even with the phase-out of nuclear power.[16] Around 68 per cent of the German public also supports the commission's earlier phase-out date of 2035 (Grieshaber, 2019; Rinscheid & Wüstenhagen, 2019).

Resources and investment

What resources were put aside for the transition?

What investment opportunities were used/given/sought?

Was EU, state, the relevant fossil-fuel company or private funding leveraged?

Assessment of success and key lessons for Ireland

Has the transition received local support? Is the plan hailed as a local, regional, national or international success?

The commission and Lusatia's transition are still in process and so it is difficult to pull decisive measures of success or recommendations for Ireland at this stage. Lessons that do emerge are as follows:

Compensation for fossil-fuel companies can be controversial and perhaps unnecessary

The Coal-Exit Commission and the German federal government's choice of compensating companies for potential profits forgone has been one of the most significant criticisms of the phase-out. Energy-intensive companies are also going to be compensated if their running costs increase when cheap lignite is phased out (this also discourages energy efficiency measures and undermines potential carbon taxes). This leads to a precedent for very expensive 'just transition' that cannot be afforded by developing countries.

Many of the power plants were also uneconomic and already slowing down operations (Wynn & Julve, 2016: 11; Oei *et al.*, 2017: 69).

Litigation is increasing in Germany as communities oppose the further removal of towns and villages for lignite mining (Oltermann, 2019).

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[16] Brauers *et al.* (2018: 17) state that much of the reason for the slow phase-out is the reliance on Carbon Capture, Transport, and Sequestration (CCTS) technology. They exclude the possibility of CCTS technology in the power sector from their analysis of Germany's energy system, as there is limited storage potential, and opposition from civil society against large-scale CCTS infrastructure. In addition, and especially with the recent cost reductions in renewable technologies, CCTS in the power sector is economically unattractive.

Consensus has been created, though whether it holds only time will tell

The commission developed proposals in a consensual manner, under a timeframe set by government. It had to complete its work within a set amount of time. A wide range of stakeholders were represented on the commission.

There were concerns that the commission's remit was too wide. It was originally to go beyond the phase-out of coal to looking at how the Germany economy could be restructured away from fossil fuels. In the end, it looked at coal phase-out but with an eye to a wider restructuring process (Baudisch & Fouquet, 2019: 46).

2.2 Case Study 2: Hazelwood, Latrobe Valley, Australia

'The Ruhr of Australia'[17]

Key Learnings

- Phase-out is context-specific. Regional differences play a major part in a transition.

- Badly handled restructurings of regional economies can leave a community in decline and lead to strong distrust of new attempts at restructuring.

- Organised local community groups, trade unions and local businesses can prepare bottom-up solutions for large shocks, but these must be backed by government funding and regional support, social dialogue and trust-building.

- Control by vested interests over the direction of a region can hamper development and entrench difficulties. However, key dramatic events can shift public opinion drastically in another direction.

- Social dialogue structures, strong welfare supports and strong community and worker involvement in decision-making can assist in building the regional institutional structures that enable regions to become resilient.

- Groups advocating for a low-carbon transition must prioritise just transition approaches; otherwise, existing difficulties can be entrenched.

- Just transition approaches are best developed in social dialogue by businesses as well as government, and applied to overseas and well as national operations.

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[17] Taken from the title of McLaren (1957), *The Ruhr of Australia: a history of the Latrobe Valley.*

Introduction – brief overview

Hazelwood power station is an example of a short-notice closure in a small community largely reliant on one source of fossil-fuel employment.

Australia is one of the world's top four coal-producing countries. It is also already suffering the negative effects of climate change. This disconnect has been a source of major debate in the country.

Latrobe Valley today still produces 85 per cent of the electricity for the entire state of Victoria and also supplies electricity to the neighbouring states of New South Wales and Tasmania (Wright *et al.,* 2015: 3). The area is home to some of the heaviest-emitting thermal power stations in Australia: Jeeralang Power Station (gas) and coal stations Yallourn W, Loy Yang A, Loy Yang B, the former Hazelwood Power Station (closed 2017) and Energy Brix Power Station (closed August 2014) (Anderson, 2017). Yallourn is scheduled for closure in 2032, Loy Yang B in 2046 and Loy Yang A by 2048 (Whittaker, 2019; Anderson, 2017). However, these closures are likely to come sooner (Morgan 2019).

History of the Latrobe Valley

Figure 17:   The industrial Latrobe Valley
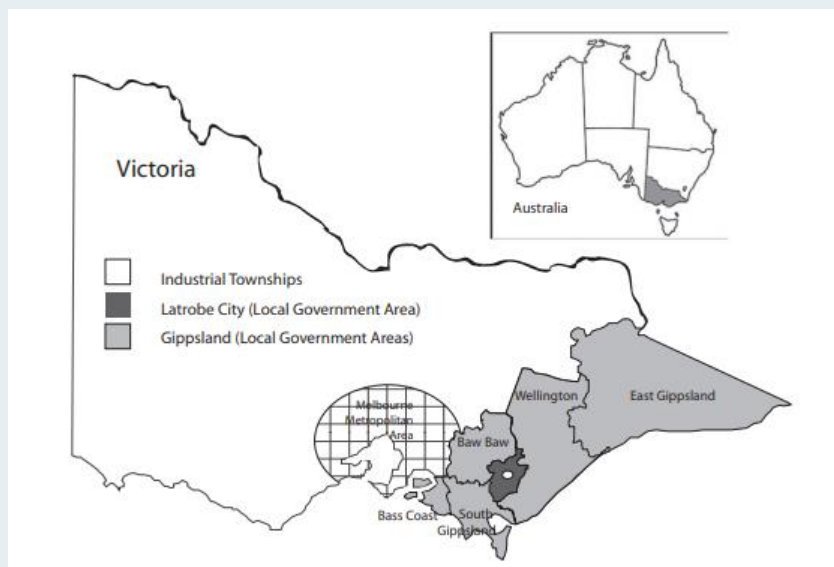
Source: Weller, 2018, 303

The Latrobe Valley is an urban inland industrial area in the wider rural Gippsland region, in the state of Victoria. There is a distinct social difference between the more industrial Latrobe Valley, which is suffering a period of socio-economic difficulty, and the relatively affluent surrounding rural areas in wider Gippsland (Weller, 2018: 304). The worst-affected regions are under the

governance of Latrobe City Council. The population of the Latrobe Valley is approx. 125,000 (Latrobe Valley Authority, 2019d).

The traditional land-owners are the indigenous Braiakaulung of the Gunaikurnai nation (Latrobe City Council, 2019). Respect is paid to the Traditional Owners and their Elders at all formal Latrobe City Council meetings (Latrobe City Council, 2019).

Rich lignite (or brown coal) deposits were discovered in the Latrobe Valley in 1873. Development of the resource became a priority for government. In 1920, the Victorian government established the State Electricity Management Commission (SECV) with the mandate to manage Victorian electricity generation and supply (Wiseman *et al.*, 2017: 11). The state government of Victoria encouraged communities to move to the area with public housing, infrastructure, schools and high wages and good conditions (Duffy & Whyte, 2017*:* 424).

Figure 18:   Morwell and Yallourn/Hazelwood mines (The Hazelwood mine is 400m from Morwell town and the freeway is built on its edge)

Source: Latrobe Valley Authority, 2019d.

This led to a model of centralised, government-controlled electricity generation and supply in Victoria (Wiseman et al, 2017: 11). The indigenous Braiakaulung people were displaced by settlement and town-building (Fletcher et al., 2005: 1-2). In 1921, the purpose-built mining town of Yallourn was removed in order to create the Yallourn mine (Duffy & Whyte, 2017: 426).

The 1960s also saw the region's diversification into other primary industries, in particular, logging, pulp and paper mills, and natural gas and oil. While these allied industries grew, the SECV remained as the region's main source of income and provider of employment. Regional local growth, employment and population followed from 1920 to the early 1990s, leading Latrobe Valley to be named '*the Ruhr of Australia*' (McLaren in Tomaney & Somerville: 34).

Privatisation

From the late 1980s, the national power industry underwent substantial change and restructuring. The restructuring of the power industry in the region commenced in 1989, but the sale of power stations occurred between 1992 and 1997 (Birrell, 2001: 3).

Privatisation was expected by the community to increase wages and improve conditions (Birrell, 2001: 5; Voices of the Valley, 2019); however, the industrial restructuring resulted in extensive job losses and regional decline. In the Latrobe Valley alone, the number of power industry jobs dropped from a pre-restructuring peak of 10,000 jobs in 1988 (Wright *et al.,* 2015: 3) to 1,800 by 2002 (Tomaney & Somerville, 2010: 34). Some power stations lost up to 75 per cent of their workforce (Cameron and Gibson, 2005: 274) and many remaining fossil-fuel jobs were outsourced with lower pay and conditions (Voices of the Valley, 2019).

Restructuring occurred without much accompanying support or replacement activity from regional or federal government. The community in Latrobe Valley faced a major economic shock that left severe repercussions in health, mental health, joblessness and social decline, which has been extensively covered by academics and historians (see Birrell, 2001; Wright *et al.,* 2015; Duffy & Whyte, 2017; Duffy *et al.,* 2017; Doig, 2015). The region became associated with decline and 'came to be described as "*The Valley of the Dole"*, Australia's version of a trailer trash community' (Proctor, 2005 in Whyte & Duffy, 429).

Figure 19:   Male suicide rates in Latrobe Valley

Source: AIHW 2017, MORT (Mortality Over Regions and Time) books: Local Government Area, 2011-2015

● **MALE SUICIDE RATES** for Bass Coast & Latrobe LGAs compared to Gippsland, Victoria and Australia, 2011-15 (crude rates per 100,00 males)

● **SUICIDE RATES** for Bass Coast & Latrobe LGAs compared to Gippsland, Victoria and Australia, 2011-15 (crude rates per 100,00 males)
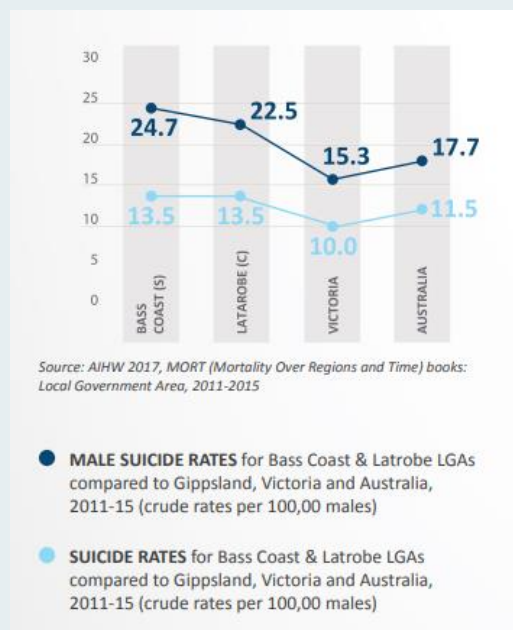
Source: PHN Gippsland, 2018.

Before privatisation, 'the Latrobe Valley had been accustomed to near full employment and continued growth' based around SECV. According to the Department of Education and Early Childhood Development, in the mid-1970s 'almost a third of the Latrobe Valley's labour force' worked in the industry (Duffy & Whyte, 2017: 427). From 1991, the valley had one of the highest unemployment levels for Victoria, with 18.6 per cent in 2006 (Wright *et al.*, 2015: 3). Between 1991 and 1999 the number of people receiving unemployment benefits increased by over 78 per cent (Duffy & Whyte, 427). Between 1991 and 1996 the population fell by over 4,000 people (Birrell, 2001: 13). Nearly a third of men aged 25-44 years who lived in Moe, Morwell and Traralgon in 1991 had left by 1996 (Birrell, 2001: 14). This was accompanied by high male suicide rates, which have remained relatively high compared to other Victoria regions to this day (PHN Gippsland, 2018).

Climate action choices and its impact on Latrobe Valley

Further restructuring losses were feared as federal government began to focus on climate legislation from the 2000s onwards when Australia's signing of the Kyoto Protocol drew attention to its coal mines and power stations (Tomaney & Somerville, 2010: 29; Weller, 2018: 302; Chubb, 2014: 25; Wiseman *et al.*, 2018, 14). Hazelwood power station in Latrobe Valley is the most polluting and most economically inefficient power station in Australia. It quickly became a symbol of Australia's climate policy failures (Wiseman *et al.,* 2017: 15). Commitments to close Hazelwood power station were made twice, by the federal and Victoria governments after environmental campaigns in 2010 and 2011 (Environment Victoria, 2016a).

Carbon pricing, a nationwide emissions trading scheme and a 'Contract for Closure' programme for polluting power stations were all proposed at national level from the early 2000s to 2013, most notably under the 2011 Clean Energy Futures Package (CEF Package). However, vested interests (Environment Victoria, 2017: 1) and a lack of measures to assuage local fears of further job losses resulted in rollback on these commitments and political losses for the proposing parties (Chubb, 2014: 23). Extra structural adjustment supports for affected regions were planned alongside these proposals, which was key to the CEF Package's support in the federal parliament under the minority Gillard Labor government, then governing in coalition with the Greens Party and independents (Weller, 2018: 302). However, the support envisaged was minimal, although the Garnaut Climate Change Review in 2008 did state that Latrobe Valley was considered to be an area 'where such targeted transitional assistance may turn out to be warranted' (Tomaney & Somerville, 2010: 38).

Hazelwood fire

Health and safety procedures were steadily reduced at the Hazelwood mine over 20 years. In 2014, this neglect by the privatised industry and the state led to the Hazelwood mine going on fire for 45 days (Alcorn, 2014; see also Doig, 2015: 39-64; Senate Committee, 2017). Nearby logging fields also fell to the fire.

Figure 20:   Hazelwood mine fire in 2014

Source: Keith Packenham, Victoria Country Fire Association.

The Hazelwood mine is 400m from Morwell town in parts, and separated by the Princes Freeway (Doig, 2015: 40; Voices of the Valley, 2019). The fire caused severe health problems for valley residents and likely contributed to 11 extra deaths in the town (Kinsella, 2015). The issue was compounded by the lack of information given to residents about the dangers of coal pollutants in the air (Doig, 2015: 67). The mine, as stated above, was 400m from Morwell town in some parts, yet workers were required to remain in the mine (Doig, 2015: 69) and nearby residents were not adequately advised to move (Ibid. 76).

In the vacuum left by a lack of clear guidance and transparency from local government and mine operators, local people organised a citizen science initiative under 'Voices of the Valley' (Ibid. 76, 86; Conroy, 2015). This group collected evidence of symptoms from local people, ran information events and mounted a public campaign for an inquiry into the mine fire and the lack of response by government (Doig, 2015: 86).

The conversation on alternatives for the region gained ground after this fire (After the Smoke Clears, 2017; Tomaney & Somerville, 2017; Wiseman *et al.*, 2017; Farmer, 2019).

Closure of Hazelwood power station

Hazelwood power station, located in Victoria's Latrobe Valley, was a 1600 megawatt (MW) lignite generator made up of eight 200 MW units constructed between 1964 and 1971. It was originally scheduled to be retired in 2005 (Environment Victoria, 2016: 1). The power station was often used by environmental groups as a symbol of Australia's lack of action on climate and was described by the World Wildlife Fund as 'the most polluting of all power stations operating in the world's major industrialised countries' (Environment Victoria, 2016a).

Hazelwood power station and mine is jointly owned by the French utility company ENGIE (formerly GDF Suez), with a 72 per cent share, and Mitsui & Co. with a 28 per cent share. The power station is fed by the adjacent open-cast Hazelwood lignite mine (Environment Victoria, 2016: 2).

Figure 21: **Example of the portrayal of Hazelwood by environmental groups in the 2000s. Portrayals became more 'just transition' and community-focused from 2010s onwards**
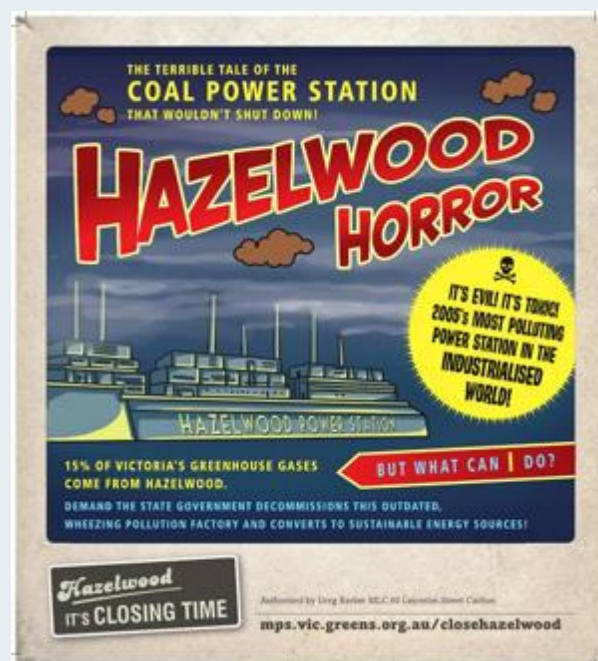
Source: Environment Victoria, 2016a

In December 2015, ENGIE, the world's second largest electricity utility, committed to making climate change a priority by signing on to the COP 21 Business and Climate Summit (ENGIE, 2019). In May 2016, CEO Isabelle Kocher said the company was reviewing its remaining coal plants one by one and would begin a gradual process of closing those with the most outdated technology (De Clercq, 2016).

The largest shareholder in ENGIE is the French government, which owns 33 per cent 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 public petition in a major French documentary from Environment Victoria supporters about the Hazelwood mine fire and the need to phase out polluting coal power stations like Hazelwood (Environment Victoria, 2016a; Wiseman *et al.*, 2017: 19). The plants were also considered uneconomic. In announcing the closure ENGIE consistently highlighted commercial reasons and the high costs of health and safety upgrades, stating 'given current and forecast market conditions, that level of investment cannot be justified' (Jotzo *et al.*, 2018, 22).

Figure 22: Postcards sent by Environment Victoria supporters to ENGIE investors and featured on French television after the Hazelwood mine fire
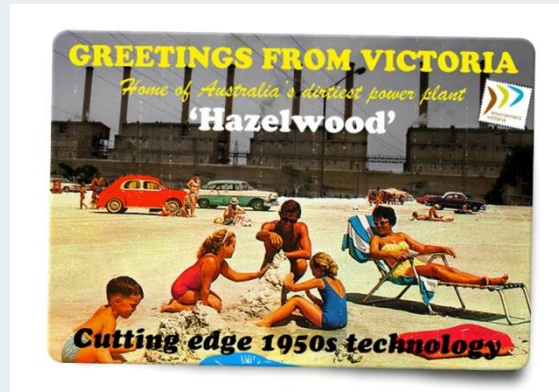
Source: Environment Victoria, 2016a

Rumours of a closure had therefore spread months ahead of the official announcement in November 2016, and a staged closure was expected. The announcement of complete closure with only five months' notice came as a shock to workers, the local community and government as no prior discussions had been held with workers or the community. As recently as February 2016, ENGIE stated that Hazelwood would be open until 2032 (Snell, 2018: 556; Wiseman *et al.,* 2017: 5).

Despite the sudden closure of the station, the Victorian government announced a A$266m transition package for the Latrobe Valley on 4 November 2016, the largest ever announced by a Victorian government (Robins *et al.*, 2018: 17). The federal government also announced a A$43m package on the same day (Karp, 2016).

Just transition proposals

Latrobe Valley's persistent decline had been the subject of numerous studies and campaigns after privatisation in the 1990s (see Weller, Snell, Tomaney & Somerville, 2010; Wiseman *et al.,* 2017; Della Bosca & Gillespie, 2018; Chubb, 2014; Baker, 2010; Birrell, 2001; Wright *et al.*, 2015; Duffy & Whyte, 2017; Duffy *et al.,* 2017; McLaren, 1957). The government had responded with investment packages that focused on attracting large-scale replacement industries to Latrobe Valley to boost economic development in the region through tax incentives and grants (Cameron & Gibson, 2005). The result was little job growth from 1996 (Birrell, 2001: 15; Weller, 2017: 394). This began to change from the mid-2000s with increased state investment in civil service employment such as state government offices, healthcare and a university campus (Weller, 2019: 1267).

The 2000s brought a climate focus to these debates; the question was no longer privatisation as the primary cause of decline, but also the government's climate policy proposals. The Australian federal government launched climate policies in the

2000s that threatened Latrobe Valley with a second round of restructuring and job losses, unaccompanied by long-term job-retention or creation plans for a community with negative experiences of restructuring (Chubb, 2014: 23). Chubb (2014: 62-67) and Wiseman *et al.* (2017) note that support for a low-carbon transition did exist in Latrobe Valley if a structural adjustment package had been developed, particularly due to the high levels of pollution and the memory of privatisation:

> In this context, there were opportunities for the government to forge alliances and win over at least some sections of the Valley community, if only they had engaged (Ibid. 15).

The emissions trading and carbon pricing schemes introduced under the 2011 Clean Energy Futures Package by the Gillard government contributed to a major swing vote for the Conservative party and an entrenchment of regional support for coal as the social impacts on coal-reliant regions were not fully engaged with (Weller, 2012: 1270; Weller, 2019: 302; Weller *et al.,* 2011; Tomaney & Somerville, 2010: 39). An analysis of the local paper *Latrobe Valley Express* by Tomany and Somerville (2010) gives a snapshot of local concerns 'The image that emerges is of a region beleaguered and threatened by powerful external forces: markets, globalisation, climate change and the ETS' (41).

This led to further polarisation and a difficulty for local businesses or the community to talk about the 'end of coal'. Particular frustration was expressed by local businesses that were not focused on coal but on expansion of tourism, and the service sector expressed frustration at the lack of alternative focus (Tomaney & Somerville, 2010: 39). However, the announcement of further potential restructuring under climate proposals led to the creation of a body of work by academics and local representatives to research the region, build alternatives and propose different ideas for economic development.

Proposals developed for the region before the announcement of the Hazelwood closure include:

- Application of 'just transition' theory and practice to the region:

  o CFMEU (2016), *'A Just Transition' for the Latrobe Valley Community,* Mining & Energy Division Victorian District Branch, Sydney: Construction, Forestry, Maritime, Mining and Energy Union (CFMEU).

  o Environment Victoria (2016), *Life After Coal: Pathways to a Just and Sustainable Transition for the Latrobe Valley,* 12 October, Melbourne: Environment Victoria.

  o Voices of the Valley (2016), *Jobs and Hope in the Latrobe Valley: One Way Forward.* Morwell: Voices of the Valley.

  o ACTU (2016), *Sharing the challenges and opportunities of a clean energy economy: A Just Transition for coal-fired electricity sector workers and communities,* Policy Discussion Paper. Melbourne: Australian Council of Trade Unions (ACTU).

- Proposals for alternatives:

  o Cameron and Gibson (2005), 'Alternative pathways to community and economic development: the Latrobe valley community partnering project', *Geographical Research*, 43(3): 274-285.

  o Latrobe City Council (2010), *Positioning Latrobe City for a Low Carbon Emission Future*, 6 April, Morwell: Latrobe City Council.

  o Fairbrother *et al.* (2012a), *Identification of opportunities to support Structural Adjustment in the Latrobe Valley,* Final Report, Commonwealth Department of Regional Australia, Local Government, Arts and Sport, Melbourne: Royal Melbourne Institute of Technology University (RMIT).

  o Fairbrother *et al.* (2012b), *Jobs and Skills Transition for the Latrobe Valley,* Final Report for Department of Education, Employment and Workplace Relations (DEEWR), Melbourne: Royal Melbourne Institute of Technology University (RMIT).

  o Coles *et al.* (2017) *Doing Things Differently: A Strategy for the Gippsland region*, Centre for People, Organisation and Work, Melbourne: Royal Melbourne Institute of Technology University (RMIT).

- Research on socio-economic decline in the region:

  o Birrell, B. (2001), *The Latrobe Valley, Victim of Industrial Restructuring,* Centre for Population and Urban Research, Clayton: Monash University.

  o Wright *et al.* (2015), 'Measuring Poverty and Inequality from Highly Aggregated Small Area Data: The Changing Fortunes of Latrobe Valley Households', *Economic Record,* 91(294): 367-385.

- Impacts of climate proposals:

  o Weller *et al.* (2011), *The Regional Effects of Pricing Carbon Emissions: An Adjustment Strategy for the Latrobe Valley,* Final Report, Regional Development Victoria, Melbourne: Centre for Strategic Economic Studies, Victoria University.

  o Weller (2012), 'The regional dimensions of the 'transition to a low-carbon economy': the case of Australia's Latrobe Valley', *Regional Studies,* 46(9): 1261-1272.

  o Tomaney and Somerville (2010) 'Climate Change and Regional Identity in the Latrobe Valley, Victoria', *Australian Humanities Review,* 49: 29-47.

  o Duffy *et al.* (2017), 'Why isn't there a plan?: Community vulnerability and resilience in the Latrobe Valley's open cut coal mine towns' in M., Companion & Chaiken, M. (Eds.), *Responses to Disasters and Climate Change: Understanding Vulnerability and Fostering Resilience*, Boca Raton: CRC Press. 207-217.

- Skills audits:

  - Fairbrother *et al.* (2012), *Jobs and Skills Transition for the Latrobe Valley: Phase 1: Benchmark occupations and skill sets,* Interim Report for Department of Education, Employment and Workplace Relations (DEEWR), Melbourne: Royal Melbourne Institute of Technology University (RMIT).

This capacity-building intensified with the burst of community-led activity after the Hazelwood mine fire, which led to the creation of the Voices of the Valley community group (Doig, 2015: 76-86). Under Voices of the Valley, the local community prepared a campaign to educate and organise themselves on, first, protecting the health of the community, and secondly, lobbying for an inquiry. This capacity-building buoyed up the community in making preparations for alternatives to the polluting industries in the region, culminating in reports such as the *Jobs and Hope in the Latrobe Valley: One Way Forward* (2016) and the awareness-raising documentary *Our Power: Reconnecting Our Communities* (Yacono *et al.,* 2019). Community groups, trade unions, local businesses, environmental groups and regional/local government bodies began to consult each other more regularly when preparing advocacy (Voices of the Valley, 2019).

As stated by Latrobe city mayor Michael Rossiter in April 2016, a few months before the announcement by ENGIE of the Hazelwood closure in November 2016:

> Our community is much more than that. Our community is innovative, connected; it's tough, resilient, determined… The transition away from brown coal is not the thing that we fear. What we fear is being abandoned. It is the leaving behind of an industry which directly employs hundreds and indirectly employs thousands without anything else to go to (Rossiter, 2016).

Despite clear support for further coal mining and power plants at federal level (Alcorn & Bowell, 2018), Hazelwood power station closed due to economic and environmental pressures on its multinational owner, ENGIE. However, at regional and local levels dialogue had been occurring to prepare the region:

> … [t]he years of work discussing and preparing for industrial change by local unions and the local community ahead of this announcement… meant unions, the GTLC [Gippsland Trades and Labour Council], and the state government were fairly well positioned to develop a response (Snell, 2018: 556).

Institutional structures in place

Political, economic and social context, e.g.: What type of government, public engagement, federal or regional? Is there a history of social partnership? What type of economy? Is it a liberal market economy (LME) (e.g. US, UK, Canada, Australia, New Zealand, Ireland) or a coordinated market economy (CME) (e.g. Germany, Japan, Sweden, Austria)?

Using Hall and Soskice's Varieties of Capitalism analysis, the Australian economy is a 'liberal market economy' (LME). (Hall & Soskice, 2001). The country is characterised by partisan-based politics and adversarial relations between business groups, trade unions and community groups (Weller, 2018: 301) including:

> [W]eakly organised business groups and unions, mechanisms for the decentralised determination of wages (at the level of enterprises), a competitive labour market with high labour turnover, a financial system heavily dependent on capital markets, a strong emphasis on competition and anti-trust, and an unwillingness of the state to interfere with the investment and production decisions of private firms (Wiseman *et al., 2017:* 28).

Although Australia privatised its energy sector in the 1990s, it is still deemed to be more 'coordinated' than the general economy as it 'performs "essential service" functions, has a high degree of state involvement and regulation, and of necessity involves long-term investments in infrastructure' (Wiseman *et al.*, 2017: 28). Despite this more coordinated approach in the energy sector, special structural adjustment fund packages are not a standard feature of the Australian government response to closures. Generally, closures are provided for with the same social welfare schemes as provided across the country:

> The Productivity Commission is careful about declaring any public obligation to the losers. Its stance is that those displaced from employment should rely on Centrelink benefits. Nevertheless it does canvass the merits of a 'specific adjustment assistance package' where 'a concentrated adjustment shock occurs rapidly and is large relative to the size of a community' (Birrell, 2001: 25).

Australia is organised federally, comprising five states. The federal government plays the major role in industrial relations. Jurisdictional responsibilities in policy and practice can be uncertain due to a conflict between federal and local governance logics - federal, state and local government boundaries overlap in parts, and there is an absence of coordination in electoral cycles, with federal elections every three years and state elections every four (Weller, 2018: 301).

Wiseman *et al.* (2018: 29) also point out a number of features of Australia's political institutions:

- Majoritarian: The Australian electoral system is based on 'first past the post', which incentivises parties to focus on marginal electorates.

- Federal system: Australia has three levels of government. States are responsible for energy and resources regulation. This enables control over climate action. The federal system enables strong control over the direction of regional development.

- High turnover of governments due to triennial (federal) and quadrennial (state) elections.

Jotzo *et al.* (2018: 25) state that these three factors 'make it especially electorally costly for governments to commit to long-term policies that impose perceived costs in the short term'. Social dialogue supports were also weakened in the 1980s (Parler *et al.*, 2011: 7). As a result, unlike in Germany, the Australian government does not prepare stable, cooperative arrangements with firms, unions and other stakeholders that can be conducive to long-term sectoral planning and incremental technology-intensive innovation (Wiseman *et al.*, 2017: 29).

Historical background

Social, economic and environmental history of the area; e.g. where the mine came from, how many workers were there previously and why, set-up of the company and surrounding ethos.

What is the role of fossil fuels (existing and new)?

What activities are in the area? Is the area diverse in its income or heavily reliant on fossil fuels?

The Latrobe Valley is an inland geographical district and urban area of the Gippsland region in the state of Victoria, Australia. As stated above at P.86, there is a distinct difference between the industrial Latrobe Valley and the relatively affluent surrounding rural areas in wider Gippsland (Weller, 2018: 304). The worst-affected regions are under the governance of Latrobe City Council.

The valley has a population of approx. 125,000 people, with three major urban centres: Moe, Morwell and Traralgon. It covers three local government areas administered by the Latrobe City Council, Baw Baw Shire Council and Wellington Shire Council (Latrobe Valley Authority, 2019d). Smaller towns are Tyers, Newborough, Yinnar, Yallourn North, Churchill (site of the local campus of Federation University) and Boolarra. The district lies east of Melbourne. Morwell, in the central Latrobe Valley, is the town closest to Hazelwood power station.

Economy

As stated above (at P.87) high-carbon energy production is a primary employer in Latrobe Valley. Many of these power stations and mines will close over the next 10-20 years, if not sooner (Whittaker, 2019; Anderson, 2017).

Around 750 workers (including contractors) were employed at Hazelwood power station and its adjacent lignite (or brown coal) mine at the time of their closures in March 2017. More than 135 workers were retained for site rehabilitation (Anderson, 2017). Around 150 others were transferred to other power stations under the Victoria government's Latrobe Valley Worker Transfer Partnership Scheme (Snell, 2018: 559; ACTU, 2017; Victoria Government, 2017). The closure of the Carter Holt Harvey sawmill with the loss of 160 jobs in mid-2017 also increased joblessness (Timberbiz, 2017). The overall contribution to unemployment in the region was 5 per cent (Burke *et al.,* 2018: 6). However, unemployment did not increase as much as expected, a trend that Burke *et al.* attribute to the 'just transition' measures developed in response to the situation (Ibid. 18-19).

While fossil-fuel employment dominates discussions of the region, of those that responded with details of their workplace in the 2016 Australian census, hospitals were the largest employer in the regional economy at 5 per cent of the workforce, followed by power industry workers at 4.2 per cent, supermarket and grocery store workers at 3 per cent, and aged care workers at 2.9 per cent (Australian Bureau of Statistics, 2019).

Logging is also an important industry, with a major paper mill located at Maryvale, near Morwell (Whittaker and Kendall, 2019).

The Gippsland campus of Federation University is home to 2,000 on-campus students, 5,000 off-campus students and nearly 400 staff.

In the Latrobe council area, unemployment is just over 9 per cent. It remains very high in the town of Morwell, at 17 per cent (Alcorn & Bowers, 2018). However, this is much the same as the 17 per cent figure it was at before Hazelwood closed (Burke *et al.*, 2017: 58).

The scale of the transition envisaged:

What did the transition aim to do?

Was the focus on redundancies, upskilling, retraining, wider community development or a more expansive whole-of-government/whole-of-economy approach?

Did the transition form part of a regional or national transition?

The transition envisaged is one of broad economic development across Latrobe Valley. The just transition proposals under Victoria and the federal government seek to support the workers affected, but also more broadly boost the region. However, whether the focus on economic development should be from 'brown to green', as in workers being transitioned from high to low-carbon employment, is still a matter of discussion in Latrobe Valley.

From the 1990s, there was some acceptance that the region would have to diversify due to rising environmental standards and climate commitments, as well as the older age of the stations, competition with cheaper resources and renewables (see Cameron & Gibson 2005; Chubb, 2014: 65-66; Wiseman *et al.*, 2017: 15). As outlined above, federal government initiatives such as the CEF Package caused major debate on the future of Latrobe Valley. The overwhelming response to these climate initiatives, unaccompanied by structural assistance, was negative and intensified regional lock-in. The region did not believe the area would change, or that the reliance would have to shift (Cain, 2019a).

Discussion of a more 'green' transition came to the fore in the region after the Hazelwood fire in 2014, and particularly after the UNFCCC Paris Agreement in 2016. Trade unions, environmental groups and community organisations used the policy aim of a just transition to create a common basis for campaigns, and to broaden and improve climate-action policy (Snell, 2018: 556). One example is Voices of the Valley. Voices of the Valley is made up of 2,300 community members who were brought together after the mine fire and are now looking to a successful

community-driven economic transition for Latrobe Valley (Voices of the Valley, 2016: 20). They work to provide a voice for public concerns over direct impact and long-term health, welfare, economic and environmental effects. The group won a Premier Sustainability Award in 2015 for their community advocacy in the wake of the 2014 fire (Voices of the Valley, 2016a). Voices of the Valley has a subset group, the Latrobe Valley Community Transition Group, which wrote the report *Jobs and Hope in the Latrobe Valley: One Way Forward* (2016). This highlights the potential of renewable energy, community-owned energy projects and the incubation of community businesses to boost the region.

The Victoria government also sees itself as having to take on a 'more progressive' role on climate change due to the inaction of the federal government (Latrobe Valley Authority, 2019c; VTHC, 2019). This approach to climate action is accompanied by strong just transition supports and funding under the Hazelwood closure package programme, part of which is the Latrobe Valley Authority (Karp, 2016).

However, many in the valley still consider coal to be the primary future for the region (Alcorn & Bowers, 2018). Before the closure of the Hazelwood power stations, regional development reports focused on economic diversification and highlighted many of the opportunities for growth in the region's other key industries – such as agribusiness and tourism. However, they largely assumed an ongoing role for coal in some form in the valley's future economic and employment mix (Environment Victoria, 2016: 11).

As noted above on P.39, an imaginative 'lock-in' is evident in Latrobe City Council's (LCC) 2016 *Strength-Led Transition* vision document which calls for 'a declaration from the state and federal governments to build a new power station' as it 'is an important opportunity for Latrobe and Victorian industry more broadly' and 'a new power station would create long term sustainable jobs, provide a future for our young people and hope for the community'. In order to begin investing in a just transition and innovation opportunities, LCC is seeking a portion of coal royalties: 'We support the utilisation of our plentiful coal deposit, in exchange for returning the royalties to support a just transition' (Latrobe City Council, 2016). A 'clean coal' power station for the region is also supported by the Nationals, Liberals and Burgess political parties at federal level (Alcorn & Bowers, 2018).

Non-fossil-fuel-based employment projects mentioned in the report are:

- A diversified bio refinery project being invested in by Australian Paper, which will power its business with a new 'waste to energy' boiler system with a capacity of 350,000 tonnes of urban waste each year (Whittaker & Kendall, 2019)

- A high-tech precinct, which will bring industry and education together to advance research and development; to provide innovative solutions to product development and further education. The estimated cost of this project, A$15m, has already been funded by the regional and federal governments (Cain, 2018).

The focus on reinvigorating coal is understandable. Previous job losses from power-station closures were replaced with new power stations that maintained the same pay and conditions. In the words of the Latrobe City Council in its submission to the Senate Environment and Communications References Committee on the

Retirement of coal-fired power stations in 2016, the previous closures of power stations in Latrobe Valley:

> … could happen because of the attention to financing and construction, union consultations, negotiations and agreements around staffing, redeployment, training and work reorganization within the SEC. When each of the old Yallourn power stations was turned off, every kilowatt hour of output had been replaced by plant built elsewhere. Every job was secured and relocated in another section of the SEC's Latrobe Valley operation without disruption to power supply, or eliminating existing jobs and employment opportunities. There were minimal adverse impacts for our region's economy and community. In short, they got it right (Latrobe City Council, 2016a: 2-3).

The Latrobe Valley Authority (LVA) has been funded to deliver a coordinated response to regional development based on the priorities of the community. This has led to a broader focus than the retention of fossil-fuel employment. As stated on the LVA website:

> The people of the Valley have put a lot of work into looking at their future and there are already dozens of reports and plans on how to diversify the local economy and take advantage of new opportunities. We will collaborate with the community to deliver on plans for new jobs and a stronger economic, social and environmental future (Latrobe Valley Authority, 2019d).

The role of government

What was the role of government in the transition? What institutions were recommended and what did government set up?

Did the government have a strong role or a hands-off approach?

Previous climate action by the Australian government

Australia has been criticised for being 'two-faced' in its climate policy – regularly signing up to climate agreements, yet in practice it is a top 20 emitter and the world's second largest coal exporter (FEPS, 2019: 2; Environment Victoria, 2016a). Climate action by the Australian federal government has been sporadic, and climate actions have often been overturned by politicians. Writing for the European Trade Union Institute (ETUI), Galgoczi says:

> Phasing out coal in energy generation has been on the Australian policy agenda for many years but contradictory policy objectives arising from changing political constellations have cancelled each other out. (2019: 31).

There is no national plan to manage transitions in Australia (Wiseman *et al.,* 2017: 34). This is despite Australia already facing the effects of climate change, with increased drought and wildfire, and even though, in the next five years, the federal government's current climate targets will require the closure of another five power stations with the same generating capacity as Hazelwood (Whittaker, 2019;

Anderson, 2017). Expert evidence, including through submissions to the Senate's Environment and Communications Reference Committee (Australian Senate, 2017), indicates that, for Australia to meet the Paris Agreement, it must prioritise closing all its high-emission coal-fired power plants by 2050, with most to be closed by 2035 (Sheldon *et al.*, 2018: 12). This is likely to mean the closure of a Hazelwood-sized power station each year until the early 2030s (Environment Victoria, 2017: 4).

Figure 23:   The future of coal-fired electricity capacity in Australia

The future of coal-fired electricity capacity in Australia
Gigawatts per year, nationally, 2021-2051.
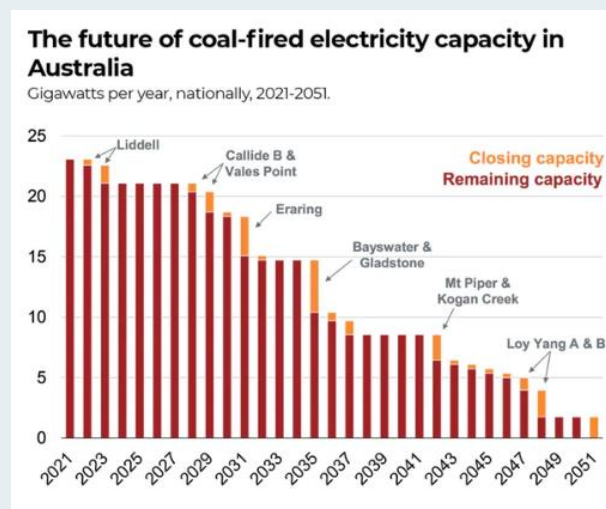
Source: Dundas 2019

These closures are likely to come with or without government action, and at short notice. In the past five years, nine power stations have closed in Australia, including Hazelwood, with an average of four months' notice (Environment Victoria, 2017: 4). Should closures continue in such a vein, this will have a major impact on local communities (Sheldon *et al.,* 2018: 13). Legislation has since been changed at federal level to require two years' notice in advance of closure (VTHC, 2019).

To cope with these closures, the Australian Senate Committee on the retirement of coal-fired power stations has argued:

> It is imperative that this reality is acknowledged by government, industry and the broader community, so that this transition can be adequately planned for and implemented at the lowest cost to consumers, taxpayers, workers and communities (2017: 69).

> … the transition away from coal fired power generation towards renewable sources of generation is inevitable;… this transition is already occurring; and… urgent and decisive action from government at all levels is required to facilitate this transition in an orderly and efficient fashion (2017: 70).

Hazelwood power station and mine

The federal government twice committed previously to closing Hazelwood power station for environmental reasons (Environment Victoria, 2016a), however these closures did not come to pass. The first announcement came from the Labor Brumby Victoria state government in 2010, and secondly through the Clean Energy Act of 2011 under the federal Labor Gillard government's Clean Energy Futures Package. This package and bill included the 'Contract for Closure' programme for polluting power stations, which was repealed in 2013 (Environment Victoria, 2017: 1).

Under the Clean Energy Future Package, the Australian government was to provide A$5.5bn over six years to help electricity generators to adapt to the carbon price. This was mainly to go to generators in Latrobe Valley (Weller *et al.,* 2011: iv). Other initiatives were:

- loans to generators to guarantee energy security and to protect against the risk of unexpected closures or capacity reductions; and

- an Energy Security Fund to negotiate the closure of up to 2,000MW, with the Valley's Hazelwood Power station as a target.[18]

Structural adjustment support for affected regions was key to the Clean Energy Future Package securing parliamentary support in 2011 under the minority Gillard Labor government, then governing in coalition with the Greens Party and independents (Weller, 2018: 302). However those supports were not created in consultation with energy providers or other stakeholders.

For directly affected workers in Latrobe Valley, there was a structural adjustment package, which offered help in accessing existing training opportunities. No additional training places were made available for these workers. Assistance was available only to direct or 'first order' job losses, not to suppliers. Job placement programmes were offered as the regional structural adjustment part of the Clean Energy Futures package, but these were criticised as they were **'**likely to have the unintended effect of further disadvantaging the region's least skilled workers; workers that have never worked directly in the electricity industry' (Weller *et al.*, 2011: v). This highlighted the need for a regional strategy that addressed wider job creation, rather than a narrow focus on those workers that had directly lost their jobs in the closing stations.

For the local community, A$200m was to be provided over seven years, from 2012-2013, for all affected regional areas, including Latrobe Valley. The precise share for each state was not stated (Weller *et al.,* 2011: v).

The lack of detail on what supports the Latrobe Valley would receive, coupled with the memory of past restructurings, is stated in the literature as having contributed to a negative reaction to these climate-action proposals (Chubb, 2014: 23; Weller,

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[18]   As of 8 October 2019, four of the five short-listed generators have closed, without requiring government payments (Dundas, 2019).

2012: 1270; Weller, 2019: 302; Weller *et al.,* 2011; Tomaney & Somerville, 2010: 39). The context is outlined by Duffy and Whyte (2017) in their interviews with local people after the Hazelwood fire in 2014:

> We just keep being lied to over and over and over. That's where the trauma came, in an absolute feeling of abandonment. It didn't matter if we lived or died, we were expendable, seems to be that's still the case (Ibid. 434).

> The community. They've seen what privatisation has done to the community and they're terrified what happens when you shut down these places. So if you've got a positive, let's create something that's really important (Ibid. 439).

Since the Hazelwood closure

National policy is still committed to coal, though a A$43m fund has been committed to the Latrobe Valley (Alcorn & Bowers, 2018; VTHC, 2019).

The federal government pledged A$43m to support the Hazelwood power-station workers, which included A$20m in support for local infrastructure, A$3m to help employees (financial counselling, assistance with résumé writing, and advice on job-seeking) and a A$20m Regional Jobs and Investment Package. This appears to have been a lump sum delivered in March 2017 (DIIS, 2016). Prime Minister Malcolm Turnbull also created a Ministerial Committee to coordinate and oversee the federal government's response.

The role of regional/local authorities

Did the local authority/regional body:
- *Make an increase in good jobs the clear test for local industrial strategies?*
- *Use their convening power to bring together unions, employers and citizens to develop a clear vision and plan for their area?*
- *Work together with other key public-sector bodies to aggregate their purchasing power in support of local economic development?*

Skills

What structures or supports were put in place to:
- *Collect data on skill-sets in the closing plant and surrounding area, who collected this data, was it shared and how?*
- *Match skills with other enterprises/organisations in the area/region, etc?*
- *Support workers and the community on social welfare or special employment measures between jobs?*
- *Contact and engage regional (or new) educational institutions in the transition?*
- *Build skills/enterprises for low-carbon jobs (from renewables to music, etc)?*
- *Encourage enterprise and new thinking?*

Before Hazelwood closure

Before the closure of the Hazelwood mine, community discussion about a just transition for the Latrobe Valley and Gippsland had progressed at a state and regional level. Key initiatives included:

- Latrobe Valley Transition Committee (see Box 1).

- Latrobe City Council report (2010) 'Positioning Latrobe City for a Low-carbon Emission Future'.

- After the Hazelwood Fire in February 2014, the Victoria government held the **Hazelwood Mine Fire Inquiry** from February to September 2014. It was reopened in May 2015. On its completion, on 21 June 2016, the Victoria government committed to A$80m in total to 'improve the lives of the Latrobe Valley Community'. This funding was mainly focused on improving the health of residents and implementing recommendations of the 2014 and 2015/2016 Inquiry Reports (Victoria Government, 2019).

- **The Hazelwood Mine Fire Inquiry report** and subsequent Implementation Plan recommended that A$60m be spent on a special 'Health Innovation Zone' for the Latrobe Valley to improve the region's health.

- A number of local government planning processes such as the **Latrobe Council Economic Development Strategy** have been developed in recent years.

- **Under its Regional Partnerships programme**, the Victoria government committed to a range of initiatives such as A$10m for the Gippsland Logistics Precinct, A$2.5m for Gippsland Lakes Protection and a new technical school for Gippsland.

- **The Gippsland Regional Plan,** released in 2015, identifies a range of regional economic opportunities within broad themes of economic prosperity, education and community wellbeing, natural environment stewardship, and connectivity (Victoria Government, 2015);

- **The Victoria government's Regional Jobs and Infrastructure Fund** provides grants to regional and rural local government authorities, government agencies, not-for-profits, community groups and businesses, encouraging applications from businesses in high-growth sectors such as medical and new energy technology; food and fibre; transport, defence and construction technology; international education and professional services.

- **The Victoria government's A$20m New Energy Jobs Fund** – part of the A$200m Future Industries Fund – aims to drive innovation in new energy technologies, increase the uptake of renewable energy generation, reduce greenhouse gas emissions and create jobs;

- The previous Victoria government in 2013 awarded more than A$9m in funding to projects that enable transition and diversification through the **Latrobe Valley Industry and Infrastructure Fund**, which was supported by the Latrobe Valley Industry and Employment Roadmap.

- **The Committee for Gippsland 'Our Region, Our Future' report** released in July 2016 examines the economic impact of power-station closure and identifies opportunities for economic transition based on a survey of local small business. While these processes are driven by recognition of the need for economic diversification and highlight many of the opportunities for growth in the region's other key industries – such as agribusiness and tourism – many largely assume an ongoing role for coal in some form in the valley's future economic and employment mix.

After closure of Hazelwood

Regarding the announcement of the closure of the Hazelwood mine and power plant in November 2016, the Victoria government announced that 'The Latrobe Valley Cabinet Taskforce, chaired by the Premier, has been meeting to plan for this very moment' (Victoria Government, 2016). Immediately, a A$22m package of support was announced for crisis support for Hazelwood workers and affected businesses, including:

- a Worker Transition Centre established in Morwell in partnership with the Gippsland Trades and Labour Council – a one-stop-shop for individual support;

- education, counselling, financial advice and subsidised job-seeker training for workers in transition;

- tailored support for businesses to help them identify new opportunities and develop a transition plan; and

- an expansion of the Back to Work programme to businesses employing workers in the Latrobe Valley.

A call centre and website also went live on 3 November 2016 to provide affected workers with access to information and support. The Victoria government also later that day announced a support package of A$266m over four years (Karp, 2016).

Learning from past experience: Latrobe Valley Transition Committee (see Box 1)

Latrobe Valley Authority

Of the A$266m committed to Latrobe Valley, A$174m was to be primarily spent on infrastructure, including A$85m for sport infrastructure, a large new energy efficiency project and a A$30m GovHub, a purpose-built regional employment hub that will be home to 300 workers – including 200 new local public sector jobs – opening in late 2020. An additional A$5m was made available to make improvements to nine schools (Latrobe Valley Authority, 2019: 2019a).

To manage the bulk of the A$266m package, the Latrobe Valley Authority (LVA) was announced and established in November 2016 and tasked with leading the government's response and managing the transition and the future economic development of the Latrobe Valley.

The LVA was established by the Victoria premier's office as an administrative office of the state government of Victoria based in the Latrobe Valley to 'work with locals and businesses, the Gippsland Regional Partnership and all levels of government to

cut red tape and give locals a real say over their future' (Victoria Government, 2016).

Figure 24:   Work of the Latrobe Valley Authority
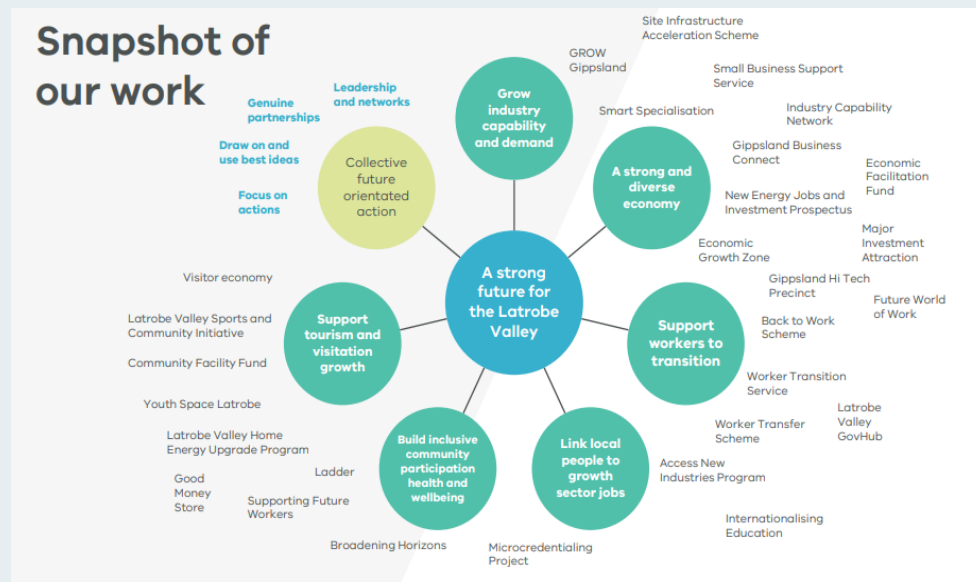
Source: Cain, 2019.

The LVA is also in charge of managing and distributing the Latrobe Valley Economic Development Programme, a A$40m initiative that 'responds to the needs of the region and supports its economic diversification, growth and resilience' (Regional Development Victoria, 2019). As well as this, the programme includes the following under the LVA:

For workers

- **Worker Transition Service (WTS):** The GTLC instigated the Worker Transition and Support Centre (WTSC) as preparation for 'contracts for closure' under the 2011 Clean Energy Future Package (Snell, 2018: 555; VTHC, 2019). The WTSC has been expanded and taken under the work programme of the LVA, becoming the Worker Transition Service, delivered jointly by the LVA and GTLC and local further education and training government bodies (Snell, 2018: 557; Latrobe Valley Authority, 2019b). Upskilling, retraining, skills accreditation, financial advice, and mental health counselling support is provided on a walk-in, open-door basis (Latrobe Valley Authority, 2019c). The service is available to all employees of Hazelwood power station and mine, Carter Holt Harvey Morwell timber mill, associated contractors, supply-chain employees, and their family members (Ibid). By April 2018, 1,141 workers and their families had been retrained to find new jobs (Asher, 2018).

- **Latrobe Valley Worker Transfer Partnership Scheme (WTPS)**: This A$20m scheme was announced in May 2018. The WTPS was developed by the three main power industry unions. Local trade union organisers pushed for the deal with local power plant operators, brokered by the Victoria government (Snell, 2018: 557). This was the first agreement of its kind in Australia, where closures are generally accompanied by redundancies (Victoria Government, 2017). The scheme involves an early-retirement scheme being introduced in the remaining open power plants in Latrobe Valley, Loy Yang A, Loy Yang B and Yallourn. These companies were offered an incentive of A$75,000 per worker to take on younger staff to fill those empty positions (Timberbiz, 2017).[19]

- **Back-to-Work VIC scheme** under the Victoria regional government (not run by LVA): This provides employers with payments of up to A$9,000 to hire and train unemployed people in the Latrobe Valley and retrenched workers from the Hazelwood power station (DIIS, 2019). As of April 2018, it had made 485 payments (Asher, 2018).

For businesses

- **Latrobe Valley Supply Chain Transition programme:** This provides intensive tailored support to businesses that will be affected by the closure of the Hazelwood power station and mine and Carter Holt Harvey sawmill in the Latrobe Valley. The programme is focused on retaining industry capability and jobs in the region. It is funded by A$5m in state funding. Companies in this supply chain can access up to A$71,000 in funding for support (Regional Development Victoria, 2019a), including:

  o   review of an established Business Transition Plan;

  o   development of a Business Transition Plan;

  o   business Transition Services; and

  o   merger Advisory Services.

- **Gippsland Hi-Tech Precinct:** This pre-existing initiative is to make Gippsland a hub for research, business incubation, new product development, start-up support, and education & training. The Precinct site in Morwell is to feature an Innovation Centre, to be constructed and opened by 2020 and co-located with Gippsland Tech School. This will directly link students with local industry and skills. The project is a partnership between Regional Development Victoria, Latrobe City Council, Federation University, Federation Training, and Latrobe Valley Authority (Regional Development Victoria, 2019b).

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[19]   According to Colin Long (VTHC, 2019) the Partnership scheme builds on a 2010 Global Agreement on Fundamental Rights, Social Dialogue and Sustainable Development, reached by ENGIE's predecessor company GDF-Suez with the IndustriALL Global Union. The agreement includes specific provisions on the just transition.

- **Gippsland Smart Specialisation Strategy project:** This project facilitates the pre-existing Gippsland Hi-Tech Precinct, using best practice and advice from the EU's Smart Specialisation Strategy initiative. The project seeks to (Cain, 2018):

    o analyse how the sectors in Gippsland currently function;

    o develop an engagement process to understand the region's strengths, future opportunities and potential;

    o create a collaborative design process to develop a shared vision for the future (the Smart Specialisation Strategy);

    o with partners, prioritise projects and activities to begin implementing the strategy; and

    o monitor and evaluate programmes going forward.

- **Latrobe Valley Economic Facilitation Fund (LVEFF):** This A$10m fund identifies and supports business growth and new job creation, consistent with priorities set out in local economic development plans, local government economic development strategies and the Gippsland Regional Partnership, a group of business and community members from across Gippsland.[20]

- **GROW Gippsland (Growing Regional Opportunities for Work):** This programme seeks to strengthen social and economic outcomes and increase job opportunities through encouraging businesses to maximise their local spend in the region. The LVA acts as a broker between businesses (GROW Gippsland, 2019).

    o Businesses involved in GROW commit to an assessment of their suppliers, procurement and employment practices and priority projects. This information is used to examine purchasing habits and look at ways to shift spending to local spend.

    o The Geelong G21 GROW programme has seen participant organisations commit to moving 7 per cent of their regional expenditure from non-local to local suppliers by 2020, with the aim of generating more than 2,500 jobs (including 500 for target communities) and in excess of A$1bn into the regional economy annually.

    o The program is focusing on generating job opportunities for key target groups – including young people, transitioning workers, Aboriginal people and the long-term unemployed.

- **Business Support Service**: This pilot provides free tailored support to those with a local business, or thinking of starting one.

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[20] The LEVFF is controversial as it recently resulted in a cement company, Steelvision, committing fraud, firing all 53 local employees after receiving grants under the programme (see KPMG, 2019).

- **Latrobe Valley Economic Growth Zone**: This initiative is aimed at attracting businesses to Latrobe Valley and is the first of its kind in Australia. The LVA reimburses fees and charges incurred by businesses establishing or expanding their operations in the Latrobe Valley, Baw Baw and Wellington council areas. It also reduces planning compliance procedures so as to speed up development in the region.

For the community

- **Latrobe Valley Community and Facility Fund (LVCFF):** Established in November 2016, the LVCFF supports projects to improve the amenity and liveability of the Latrobe Valley. The LVA provides grants for planning, events, infrastructure and capacity-building of around A\$20k but up to A\$300k for community space upgrades. In July 2018, a review of the programme identified the need to broaden the range and variety of projects and activities to better achieve its aim (Latrobe Valley Authority, 2019e).

- **Latrobe Valley Home Energy Upgrade programme:** Launched in February 2017, this distributes A\$5m to deliver energy upgrades of A\$4,500 each to up to 1,000 households in Latrobe City, Wellington & Baw Baw. The project focuses on those on social welfare (Latrobe Valley Authority, 2019: 2019a).

- **Latrobe Valley Mine Rehabilitation Commission:** This body is charged with examining what is required in order to rehabilitate the mines and power plants in the region.

- Latrobe Valley Health Zone Assembly and Advocate.

- Sports and Community Initiative.

- Youth Space Latrobe.

Successes

So far, according to the Latrobe Valley Authority (Cain, 2019: 13):

- 865 people have been employed through the back-to-work scheme and 962 jobs created through the Economic Facilitation Fund.

- 135 community projects have been supported through the Community Facility Fund.

- 1,434 workers and their families have been supported through the Worker Transition Service.

New and further transition funds are likely to be needed as the region is still being supported by high-paying employment at the region's remaining power stations — Yallourn and Loy Yang A and B (Whittaker, 2019c).

The Latrobe Valley Authority: 'Doing things differently' (See Box 4)

Role of different actors

What roles did businesses, trade unions, local communities and NGOs have in the transition? What were their concerns? Did they have campaigns, certain asks or allegiances that may have helped or hindered transition?

The presence of key actors or interventions

Were there any key events that shifted debate?

Community reaction to privatisation

The literature places a strong emphasis on feelings of hopelessness and distrust after privatisation in Latrobe Valley as having 'important ongoing impacts into the present' in terms of responses to climate-action proposals, the Hazelwood mine fire and the closure of Hazelwood power station (Duffy & Whyte, 429).

In the words of the Latrobe City Council in its submission to the Senate Environment and Communications References Committee on the Retirement of coal-fired power stations in 2016:

> … privatisation, deregulation and National Competition Policy have defined Australia's national energy reform agenda for two decades. This agenda has developed few initiatives to protect vulnerable communities like Latrobe City from a disproportionate burden of impact. (Latrobe City Council, 2016: 3).

Geographers Katherine Gibson and Jenny Cameron, along with psychologist Arthur Veno (1999: 24), comment that 'a narrative of victimhood seemed to be predominant in the Latrobe Valley region' and a sense 'of hopelessness engendered in people and of their ability to fight back or exert their rights' (in Duffy & Whyte, 2017: 429). In research conducted in 1997, Gibson (2001) records the following in an interview with a former electricity worker:

> The problem with the Valley, it's a place that's been artificially manufactured and that's the problem, that's how I see the problem. The Valley was built by the government and the government wiped their hands of it when they had the responsibility to take it on to look after it. You'll never get over what happened because the Valley is definitely an orchestrated built area. It was built to supply a need and the Valley took on the people, and the governments encouraged the people to come here, but when the hard word went on, they wiped their hands of the place (Gibson, 2001 in Duffy & Whyte, 428).

After four years of fieldwork in Latrobe Valley, economic geographer and sociologist Sarah Weller (2018: 304) concludes that 'the defensive sense of place in the industrial towns is expressed in the widespread view that governments cannot be trusted to respect local views or to follow through on promises'. This distrust should not be interpreted as a commitment to coal however; for the Latrobe Valley community:

> [T]he overriding issue was not whether but how and when the closures occurred, and what replacement sources of employment could be

established. The central issue was insisting that the change process not repeat the devastation of privatization' (Ibid. 311).

Climate-action proposals

The lack of structural adjustment support accompanying previous climate-action proposals in Australia is key to understanding the reticence of the Latrobe Valley regarding further change. Climate-action proposals gave rise to memories of past restructurings, as explained by Birrell (2001: 6):

> … there were no major new industries established in the Valley in the period up to 1996 which might have compensated for the sharp contraction in ESI employment and which could have provided an alternative base for additional service jobs.

Up to 2001, new businesses to the area included the National Foods plant in Morwell and the Centrelink call centre in Traralgon (Ibid. 15). In announcing plans for a nationwide emissions trading scheme, in July 2008 Penny Wong, the Minister for Climate Change at the time, announced in the Department's budget overview:

> The successful introduction of this scheme will be the most significant economic and structural reform undertaken in Australia since the trade liberalisation of the 1980s (Department of Climate Change, 2008: 3)

When the impact was shown to negatively affect Latrobe Valley, the Gippsland Trades and Labour Council secretary John Parker stated: 'Let's get the new industries in place before the chains go on the gates of the old ones' (Chubb, 2014: 30). Energy providers and coal companies also spoke out against the lack of structural adjustment supports (Watson, 2016):

- The Australian Energy company AGL said in response to Victoria's higher decarbonisation targets in June 2016: '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.'

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

- 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.'

Preparation by stakeholders for further restructuring

Despite the above statements, this 'just transition' approach does not seem to have been taken by federal government. This led to regional government and local actors taking on the role of building just transition proposals and alternatives. A number of interesting factors led to the strong support from the Victoria government for a just transition package, and the creation of the Latrobe Valley Authority. This

coordinated response among different actors ensured that policy proposals were prepared in the event of a crisis.

The uniquely damaging impact of privatisation on the Latrobe Valley, in its drop from full employment to 'Dole Valley', led to a wealth of research and trial and error on regional development options. The intense impact that climate-action proposals at federal government level would have on Latrobe Valley also led to the creation of data-collection initiatives and non-fossil-fuel alternatives for the region. Finally, an interesting development with the Hazelwood fire is that it appears to have been a major catalyst not only in pushing forward the debate on just transition, but in community capacity-building. The fire led to the creation of Voices of the Valley and other community groups who trained themselves and other community members in making submissions to government, campaigning, citizen science and creating forums for debate and negotiation. Members of the group ran for election in order to advocate for the concerns of the community, receiving a significant vote share (Doig, 2015: 103-110; Voices of the Valley, 2016; 2019).

Figure 25:   Community capacity-building through Voices of the Valley
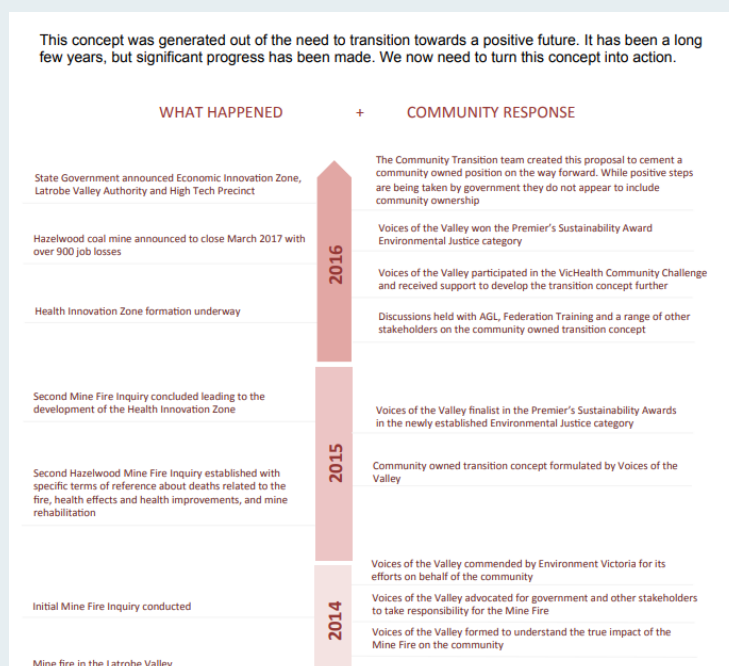
Source: Voices of the Valley, 2017.

Trade unions also played a major role in the development of just transition proposals. Australian unions, environmental NGOs, community groups and local businesses have worked closely together on national, regional and local just transition proposals (Snell, 2018: 556; Sheldon *et al.*, 2018: 18; Wiseman *et al.*, *2017:* 36), including the following prior to the announcement of the Hazelwood closure:

- CFMEU (2016), *A Just Transition for the Latrobe Valley Community,* Mining & Energy Division Victorian District Branch, Sydney: Construction, Forestry, Maritime, Mining and Energy Union (CFMEU).

- Environment Victoria (2016), *Life After Coal: Pathways to a Just and Sustainable Transition for the Latrobe Valley,* 12 October, Melbourne: Environment Victoria.

- Voices of the Valley (2016), *Jobs and Hope in the Latrobe Valley: One Way Forward.* Morwell: Voices of the Valley.

- ACTU (2016), *Sharing the challenges and opportunities of a clean energy economy: A Just Transition for coal-fired electricity sector workers and communities,* Policy Discussion Paper. Melbourne: Australian Council of Trade Unions (ACTU).

Major Australian unions (the CFMEU and ACTU) combined to negotiate the Latrobe Valley Worker Transfer Scheme with the Victoria state government and three privately owned power stations (Snell, 2018: 557; ACTU, 2017). This is the first agreement of its kind in Australia and is based on similar transfers in the Ruhr valley. The scheme builds on the 2010 Global Agreement on Fundamental Rights, Social Dialogue and Sustainable Development, reached by ENGIE's predecessor company GDF-Suez with the IndustriALL Global Union. The agreement includes specific provisions on the just transition (VTHC, 2019).

Another institution that plays a key role is that of the Latrobe Valley Transition Committee (LVTC). Learnings from the failures of the LVTC led to improvements in the Latrobe Valley Authority, including a focus on a more place-based, participative, iterative approach that focused on worst-affected areas (see Weller, 2019).

Resources and investment

What resources were put aside for the transition?

What investment opportunities were used/given/sought?

Was EU, state, the relevant fossil-fuel company or private funding leveraged?

The resources were:

- A$266m of funding from the Victoria state government; and

- A$43m of funding from the federal government.

Assessment of success and key lessons for Ireland

Has the transition received local support? Is the plan hailed as a local, regional, national or international success?

- **Transitions are complex and take time:** The Latrobe Valley is a region that has undergone extensive change and restructuring, and success is still questioned (Whittaker, 2019a). To address the socio-economic decline that followed privatisation, many different forms of regional development were practised in the region. Different approaches failed or succeeded and were monitored over

time. This monitoring, by different experts and the community, was included in decision-making after the Hazelwood closure and the learnings were used to develop the new approach of the Victoria state government and the Latrobe Valley Authority. Further monitoring and iterative learning has honed this approach and allowed for a flexible approach to what works and what's needed. Regional development measures such as the LVTC, the overt focus on attracting outside businesses to the region rather than building local capacity or businesses, and the lack of just transition measures to accompany climate proposals all led to key learnings that could be built on after 2016, provided that those affected were included in discussions.

- **Context and past experiences of transition can shape a region's response to, and experience of, transition:** Lessons from past restructurings must be to the forefront of any government response. In the literature, environmental groups tend to state that the reason for lack of closure was 'changed political circumstances' that 'gave Hazelwood a lifeline to keep operating' (Environment Victoria, *2017:* 1). However, a closer analysis shows that the issue of reticence may have lain in demands for closures unaccompanied by long-term plans for a community with negative experiences of restructuring.

- **Preparation is required for a just transition, whether it be led by government, regional or local/community-based actors and followed up with government support:** While the literature and the Ruhr/Lusatia examples point to government leadership and forward-planning as 'best practice' on just transition, preparation by local actors can fill the gap with cooperation, regional support and government funding. Hazelwood is quite a positive example of just transition, despite Australia not being a CME economy, or indeed having a history of providing support in cases of economic restructuring. Snell (2018) attributes this to the organising of trade unions in the region, including the organising of monthly Climate Change Forums that invited local businesses, community groups, local government and unions to discuss green alternatives for the region. Wiseman *et al.* (2018) attribute it to environmental and trade union groups working together to build just transition scenarios and demands into campaigns for the closure of the Hazelwood power plant. Weller (2018), Farmer and Cain (interviews in 2019) see the gap as being filled by the preparation of local community groups, businesses, trade unions and experts who worked together to assess the region, explore its weaknesses and strengths and build alternatives over time.

- **Social dialogue is an effective, if not fundamental, mechanism for fostering trust and adopting a problem-solving approach to transition:** It fosters shared understanding, enables the exchange of difficult facts (scale of plant closures, for example), supports delivery and encourages a problem-solving approach. Social dialogue took different forms whether in planning to transition, or in forming a response to the initial 'shock'. The Hazelwood fire in particular appears to have sparked a serious initiative to build community capacity in decision-making and to join stakeholders in the region together to take action. The local community filled a vacuum and prepared a campaign to educate and organise themselves on first, protecting the health of the community and second, lobbying for an inquiry. This capacity-building then buoyed up the community in making preparations for alternatives to the polluting industries in the region. Community groups, trade

unions, local businesses, environmental groups and regional/local government bodies began to consult each other more regularly when preparing advocacy.

- **An inclusive, place-based approach is necessary, with an overall focus on regional development rather than just directly affected workers and companies:** As noted above, federal states have strong power over regional development. This means that, although the national parliament appeared to be lacking just transition or climate-action strategies, the Victoria state government was able to pull together a package that has been very well responded to and been met with praise from the local community and academics. The lack of prepared measures can also lead to savings on unnecessary costs to uneconomic activities. For example, the Clean Energy Futures Package committed A$5.5bn over six years to energy providers as compensation for carbon pricing and 'mothballing' closures. However, as of 8 October 2019, four of the five short-listed generators under the package have closed without requiring government payments (Dundas, 2019). Also, focusing on supports for directly affected workers and companies alone is likely to worsen the regional situation, causing anxiety for communities and bitterness as others cannot find employment. Local resources may be unknown and understated but a driver of success.

- **Just transition is not limited to national responses**, but also to the operations of companies overseas. Without the work of the Latrobe Valley Authority and trade unions to prepare the Worker Transition Service, the work of the Victoria government, unions and the company to establish the Worker Transfer Service, and the major support of the Victoria government to back further regional just transition measures, the closure of Hazelwood would likely have resulted in a repeat of adjustment in the 1990s.

2.3   Case Study 3: Scotland

Lang may yer lum reek.[21] (Long may your chimney smoke!)

Key Learnings

- Transitions are complex. A good approach tends to be place-based, context-specific and cognisant of regional differences.

- Badly handled restructurings of regional economies can leave a community in decline and distrustful of new attempts at restructuring.

- Groups advocating for transition should prioritise just transition approaches to avoid retrenching existing difficulties and causing a backlash against transition.

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[21] A Scottish hogmanay greeting meaning 'May you live a long and healthy life' or 'May you never be without fuel for your fire!'.

- The framework of just transition exposes inconsistencies in climate, economic and social policy and creates a useful policy space to discuss previously hidden interactions and intersections.

- Good-quality employment in fossil fuels acts as a draw to people in regions otherwise beset by difficulties. Ensuring good pay and conditions in new industries can win over vested interests, but government commitment to intentionally develop a new sector is needed to reap the benefits of a new economy.

- A focused taskforce approach with representatives from workers and businesses is beneficial.

- Data collection is an issue. Information is needed on skills in particular regions and how they can be matched, or if new industries can be built/or old industries revitalised in an area.

- Transparency and good-faith commitment is needed for the transition, from companies, government and other vested interests.

Introduction

The term 'just transition' is taken throughout this project to mean a transition approach that focuses on securing and creating decent work and quality jobs as we move to a low-carbon economy. This is in line with the supporting principles on just transition outlined by the ILO (2015), UNFCCC (2016) and OECD (Botta, 2018), based on the preamble of the Paris Agreement, which requires signatory countries to reduce their emissions while:

> … [t]aking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities... (UNFCCC, 2015).

From a preliminary analysis of the literature in preparation of the project's case studies, Scotland appears to be the sole current example of a state-established *just transition* approach *in process* that is not dealing with transitioning workers and their communities away from coal-based employment. For example:

- **United States:** The Appalachian Just Transition Fund is aimed at assisting coal miners and their communities to transition away from coal mining and coal-fired coal production (Robins *et al.*, 2018a: 9). There is a growing debate on the Green New Deal and its jobs guarantee, which explores the mass transition of the workforce to a low-carbon economy. However, though legislation has been introduced, proposals have not yet been implemented (Friedman, 2019).

- **Canada:** Canada's Just Transition Taskforce was focused on the transition of workers and their communities away from coal-fired electricity (Government of Canada, 2019)

- **Spain:** Spain's *Plan del Carbón* secures a just and fair transition of workers and their communities away from coal mining (IndustriALL, 2018; ETUC, 2018).

- **European Union:** The European Parliament's planned Just Transition Fund is focused on transitioning eastern European countries away from coal (de Pous & Popp, 2019). The EU Coal Regions in Transition Platform is also coal-focused (European Commission, 2019a). However, the planned Green Deal has a wider focus on assisting 'fossil-fuel' dependent regions (European Commission, 2019: 16).

The Scottish Just Transition Commission is the sole state-established *just transition* approach *in process* that is dedicated to examining how an *entire* country's workforce can be transitioned away from fossil-fuel based employment in a fair and just manner – although there are some similarities with the German federal government's plan to use its Coal-Exit Commission template to establish consensus on fossil-fuel phase-out in other sectors of the economy such as housing (BMU, 2016: 8).

This broad focus, however, may also be a weakness. Other state-established *just transition* approaches have a specific region or a specific industry as the focus. The Just Transition Commission is focused on listening, collecting information on the economy as a whole and making recommendations after two years. Therefore, it is not engaged in more hands-on, consensus-building or employment skills transition support. For this reason, the following case study outlines in brief the taskforce approach used by the Scottish government in cases of shock closures. The taskforce approach is a general approach for plant/industry closures and is not reserved for low-carbon transitions. However, it still provides some useful lessons for Ireland.

Historical background

Social, economic and environmental history of the area; e.g. where the mine came from, how many workers were there previously and why, set-up of the company and surrounding ethos.

What is the role of fossil fuels (existing and new)?

What activities are in the area? Is the area diverse in its income or heavily reliant on fossil fuels?

Institutional structures in place

Political, economic and social context, e.g.: What type of government, public engagement, federal or regional? Is there a history of social partnership? What type of economy? Is it a liberal market economy (LME) (e.g. US, UK, Canada, Australia, New Zealand, Ireland) or a coordinated market economy (CME) (e.g. Germany, Japan, Sweden, Austria)?

Scotland is a devolved regional government under the United Kingdom's Westminster government. The government in Scotland is structured into a number of directorates. Directorates and their related public bodies are responsible for putting government policy into practice. There are 32 local authorities (councils) in Scotland (Scottish Government, 2019c)

Scotland is a liberal market economy. Its small size enables coordinated campaigns by stakeholder groups such as NGOs and trade unions on just transition to be integrated into government policy with relative ease (STUC, 2019a).

Climate policy background

The UK has a long-standing overall climate policy and legislative framework, developed under the EU (Robins *et al.,* 2018: 3).

Scotland has made significant progress in reducing greenhouse-gas emissions, passing ambitious climate legislation in 2009 and achieving a reduction of 49 per cent in all industry emissions between 1990 and 2015 (Scottish Government, 2018a: 139). Scotland is also on target to reach 2020 and 2050 targets (an 80 per cent reduction). There is mounting pressure to increase this target to 90 per cent by 2050 and it has been judged as feasible, though only with 'commercial-scale deployment of carbon capture and storage to begin in the 2030s' (Scottish Government, 2018b: 7). This target's reliance on carbon capture and storage is controversial as it is 'dependent on as yet undeveloped technological advancement and cannot be properly scrutinised' (Scottish Government, 2018b: 7).

The Scottish Programme for Government 2019 (2019a: 3) has also committed to greater ambition than the Westminster government by ending 'its contribution to global climate change by 2045 at the latest' under the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. This 'net zero by 2045' target has set one of highest climate targets in the world and was passed with full support by the Scottish parliament (BBC News, 2019). Scotland has also committed to retaining concurrence with EU legislation in the wake of Brexit, as there are concerns that the process may undermine UK climate legislation (Scottish Government, 2019d). The Scottish government also declared a climate emergency on 28 April 2019 (BBC News, 2019a).

Scotland's high targets are set alongside a thriving fossil-fuel based economy, with many high-quality jobs in north-east Scotland being based on oil and gas. There are no plans to reduce the exploitation of oil and gas resources in the North Sea in the coming decades, and neither is the exploration for new resources to be restrained (Silver, 2018a). The Scottish and UK governments both support 'maximis[ing] economic recovery of UK petroleum' (Bradley, 2017) which is a legal obligation under the UK Infrastructure Act 2015.

Scotland has little control over this overall situation as offshore oil and gas resources were privatised in the 1970s and regulation (apart from licensing) is under the control of Westminster (Wright and Boué, 2017: 337-338). Matters of energy and industrial relations policy are also decided in Westminster.

The role of government

What was the role of government in the transition? What institutions were recommended and what did government set up?

Did the government have a strong role or a hands-off approach?

As stated above, the Scottish government has a strong record of meeting climate targets. The following discusses the role of government in acting on *just transition.*

Just transition policy background

There is no national just transition strategy, policy or legislation at Westminster level (OGTC, 2019; FOE Scotland, 2019). The Scottish government has sought to fill this gap with new legislation requiring climate action to accord with just transition principles under the Climate Change (Emissions Reduction Targets) (Scotland) Bill 2019, which was passed into legislation as of the 31st October 2019. The government has also established a Just Transition Commission on a non-statutory footing for two years (see below).

In these two years, the commission will collate recommendations and advice for government on how the transition to a 'net zero' economy by 2045 can be done in a fair and just manner (Just Transition Commission, 2019; 2019a). The origins of this body are as follows.

During deliberations on Scotland's renewed climate targets under the Paris Agreement, a national debate arose on the need to insert the just transition principles of the Paris Agreement[22] into the Climate Change (Emissions Reduction Targets) (Scotland) Bill 2019 (later Act). This campaign was led by the Just Transition Partnership, a coalition of environmental NGOs and trade unions (see section on 'Other actors' below).

The Scottish parliament passed a motion to support the application of just transition principles in Scotland on 15 January, 2017 (Scottish Parliament, 2019):

> That Parliament supports the application of just transition principles in Scotland, acknowledging the need to plan, invest in and implement a transition to carbon-neutrality in a way that is fair for all.'

This was passed with the following amendments:

> That the Parliament supports the application of just transition principles in Scotland, acknowledging the need to plan, invest in and implement a transition to carbon-neutrality in a way that is fair for all; believes that implementing a circular economy strategy for Scotland is an effective and sustainable way to bring about this transition [amendment from the Conservative party], and further supports the just transition process through giving further consideration to the establishment of a statutory, long-term just transition commission, which should be well-funded, independent of government and accountable to the Parliament, building on the work of the present non-statutory commission [amendment from the Labour Party].

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[22] The Paris Agreement requires parties to increase action to reduce greenhouse-gas emissions while taking into account 'the imperatives of a just transition of the workforce and the creation of decent work and quality jobs'.

The Scottish regional government later included in its Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 the requirement that climate action must accord with just transition (Just Transition Commission, 2019).

The Just Transition Commission

The Just Transition Commission Scotland was established by the Scottish government for a two-year period, 2019-2021, to provide independent advice to Scottish ministers on the long-term strategic opportunities and challenges relating to the transition to a 'net zero-carbon'[23] economy by 2045 and in the context of Scotland's Economic Strategy (Just Transition Commission, 2019). The secretariat is based within the Decarbonisation Division of the Scottish government. The commission is expected to complete its work by early 2021 (Scottish Government, 2019j). An interim report was published on the 27th of February 2020 (Scottish Government 2020).

The purpose of the commission, as outlined in its published remit (Just Transition Commission, 2019a), is to advise Scottish ministers on how to apply the following just transition principles to Scotland:[24]

- plan, invest and implement a transition to environmentally and socially sustainable jobs, sectors and economies, building on Scotland's economic and workforce strengths and potential;

- create opportunities to develop resource-efficient and sustainable economic approaches, which help address inequality and poverty; and

- design and deliver low-carbon investment and infrastructure, and make all possible efforts to create decent, fair and high-value work, in a way that does not negatively affect the current workforce and overall economy.

The commission reports to the Cabinet Secretary for Environment, Climate Change and Land Reform, the Cabinet Secretary for Finance, Economy and Fair Work, and the Cabinet Secretary for Communities and Local Government. These may ask the commission for advice in their functions as ministers.

Amendments were made to the Climate Change (Emissions Reduction Targets) (Scotland) Bill 2019 by the Scottish Labour Party to place the Just Transition Commission on a statutory footing (Scottish Parliament 2019b). As stated above, the bill became legislation on the 31st of October 2019. Despite support from the trade union and environmental movements, these amendments were not successful (Kirkaldy 2019). However, just transition principles were placed in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 (section 35C) and the Scottish National Investment Bank Act 2020 (section 3(2)(d)).

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[23] Net zero is a controversial term as it allows for significant carbon abatement through the purchase of offsetting credits or reliance on the future ability of CCS rather than actual emissions reductions.

[24] The principles referenced are those of the ILO (2015), see (Just Transition Commission, 2019) through the linked text *Just Transition principles.*

Structure of the commission

The commission is chaired by Professor Jim Skea, co-chair of the Intergovernmental Panel on Climate Change mitigation working group, former member of the UK Committee on Climate Change and co-author of the Intergovernmental Panel on Climate Change (IPCC, 2018) *Special Report on Global Warming of 1.5ºC.*

The commission further comprises 12 individuals from business, industry, unions (STUC), technology experts, civil society (2050 Group), the public sector and environmental groups (WWF). Commissioners have been invited to sit on the commission in an individual capacity and, unless stated in letters of appointment, are not acting as representatives of particular groups or organisations.

The commission will discuss the following priority themes (Just Transition Commission, 2019j):

- Quality of work

- Regional Cohesion

- Social Inclusion

- Economic Development

- Lessons Learned

- Communicating change to those affected by the transition

The commission's work plan and approx. 10 meetings will take place between the inaugural meeting in January 2019 and January 2021. The meetings are structured around the following topics:

- Power generation and distribution (April 2019)

- Transport/Buildings/Public Sector

- Oil and gas (September 2019)

- Land and agriculture (November 2019)

- Energy-intensive industries

- Finance and investment/business

- Innovation and delivery at scale

- Skills and labour markets/Education (autumn 2020)

These meetings will take place in different locations around the country 'to facilitate meaningful social dialogue with those most likely to be involved in and/or affected by the transition to a carbon-neutral economy'. The commission is tasked with specifically seeking and considering the views of young people.

Final report

Within two years of its inaugural meeting, the commission will provide a written report to Scottish ministers that provides practical, realistic, affordable recommendations that will support them in taking action that will:

- maximise the economic and social opportunities that the move to a carbon-neutral economy by 2050 offers;

- build on Scotland's strengths and assets; and

- understand and mitigate risks that could arise in relation to regional cohesion, equalities, poverty (including fuel poverty), and a sustainable and inclusive labour market (Just Transition Commission, 2019a: 1).

The final report will be published in 2020/2021. As noted above, an interim report was published on the 27th of February 2020 (Scottish Government 2020).

The commission's remit is limited. It cannot give advice on the following:

- advice on the levels of statutory targets (such as those for reducing greenhouse-gas emissions, and poverty); and

- wider issues that are already within the remit of other bodies, such as the Fair Work Convention, UK Committee on Climate Change, Scottish Infrastructure Commission and the Poverty and Inequality Commission.

Engagement with the public

It is anticipated that several different forms of engagement will be undertaken to ensure that relevant viewpoints are heard and considered by the commission. These are likely to include:

- information gathering sessions at commission meetings;

- public meetings, events, and workshops;

- some form of social research; and

- online engagement.

In practice, this public engagement is difficult to organise due to resource and time constraints on the part of the secretariat, and has only occurred once. In July 2019, members of the Just Transition Commission met with community representatives from the Longannet Initiative Strategic Partnership at the Coalfield Regeneration Trust base in Kincardine. According to the minutes of the meeting, this was an opportunity to engage with local community representatives to understand their perspective in facing and addressing the challenges presented by the closure of Longannet power station. This event helped to build on the April 2019 Commission meeting on power generation and distribution held in Kincardine. It also allowed for further exploration of the issues raised with members of the local community (Just Transition Commission, 2019g).

The scale of the transition envisaged

What did the transition aim to do?

Was the focus on redundancies, upskilling, retraining, wider community development or a more expansive whole-of-government/whole-of-economy approach?

Did the transition form part of an EU-wide, regional or national transition?

There are different scales of transition in process in Scotland:

Coal phase-out

In November 2015, the UK committed to closing all British coal-fired power stations by 2025 (Mason, 2015). This was accompanied by cuts to supports for renewable subsidies (McAlister, 2015). This 2025 target was met early in Scotland with the closure of Longannet power station in 2015, which contributed to a 10.3 per cent drop in Scotland's emissions from 2015-2016 (BBC News, 2018). However, the closure was not the direct result of UK or Scottish government climate policy, but due to economic factors including the high transmission price of supplying power to the grid from Scotland[25] and the higher cost of coal (Just Transition Commission, 2019e). Previous coal-mine and power-station closures in the 1960-80s were also due to economic and political factors (Silver, 2018).

The Longannet Taskforce, which included Scottish Power, trade unions and the local council, was focused on creating economic alternatives and support for the region as a whole, not just for the power plant and supply-chain workers. This was considered an improvement on previous coal-mine and power-plant closures in the 1960s-80s, which led to entrenched difficulties for the region (IPPR, 2019). Nearly all of the 370 Longannet workers found alternative employment or training through the Taskforce (Just Transition Commission, 2019e: 2). As noted on P.37, a majority of replacement jobs were found in the Grangemouth plastics refinery nearby (FOE Scotland, 2019). Fife Council is also working on attracting a railway carriage manufacturing company to the plant (Williams, 2019). Fife Council has secured a commitment from the Scottish government to electrify the railway and build two new railway stations should the Talgo takeover be successful (Fife Council, 2019).

Oil and gas phase-out

There is no government plan to transition oil and gas workers into low-carbon employment (OGTC, 2019). Scotland's target of reaching a net zero economy by 2045 exists alongside a commitment to 'maximise oil and gas recovery' for the foreseeable future (Bradley, 2019; Muttitt *et al.,* 2019: 4). As stated by Scotland's First Minister Nicola Sturgeon (Silver, 2019):

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[25] Scottish energy companies pay more to feed into the UK grid due to cost being calculated on the basis of the distance from the centre of the grid, which is close to the English Midlands (FOE Scotland, 2019).

> The North Sea will continue to produce oil for decades to come. It still contains up to 20 billion barrels of recoverable reserves. Our primary aim – and I want to underline and emphasis this – our primary aim is to maximise economic recovery of those reserves.

During the global 2014 downturn in the oil and gas industry, the Scottish government established the Transition Training Fund (Skills Development Scotland, 2018). This fund provided support to oil and gas workers so that they could maintain their skills through what was considered a cyclical drop in the industry. In launching the fund it was announced that:

> … [t]he Scottish Government's Transition Training Fund will help maintain the highly skilled energy workforce in the North Sea region by offering grants to individuals to support their redeployment through retraining or further education. It will also help people with the costs of maintaining any licences they need to work in the sector (Scottish Government, 2016).

The aim was to support workers until the industry was 'flexible enough to capitalise on exploration investment and future oil prices' and head off 'the risk that the highly skilled workforce is lost to the sector as they look for opportunities elsewhere'.

As discussed below on P.135, the fund was therefore not a 'brown to green' transition but focused on maintaining skills in the oil and gas sector during a downturn. Of the 4,088 successful applicants, 68 per cent are in employment. Of that 68 per cent, 56 per cent are still employed in the oil and gas sector and the carbon impact of remaining employment achieved is not given (Transition Training Fund, 2019).

The fund was wound up in 2018 (Skills Development Scotland, 2018). There are no government plans to reinstate the fund or provide further specialised assistance to oil and gas workers to transition (OGTC, 2019). This is despite the continuing decline of employment in the industry due to increasing automation (WEF, 2017: 15), worsening employment conditions (Silver, 2018a; 2019), the depletion of North Sea resources (AEPP, 2018: 73) and the projected impact of climate policies on the industry (Muttitt *et al.*, 2019: 54).

Renewables

While the Scottish government supports the transition of the Scottish energy system to renewables, particularly electricity, this commitment is not integrated with a just transition approach for workers and their communities. The shift to the low-carbon economy in Scotland was predicted by economic modelling to lead to major jobs for the Scottish economy. However, 10 years later these job gains have not emerged. Economic modelling was incorrect and, out of around 130,000 jobs promised for Scotland by 2020, only 46,400 have emerged (Scottish Parliament,

2019; STUC, 2019: 3).[26] The lack of regional investment or the creation of local jobs in the renewables industry is considered an 'unjust' green transition by climate NGOs, local communities and trade unions in Scotland.

The Scottish government and associated bodies such as Scottish Enterprise, Skills Development Scotland (SDS) and Invest in Fife have invested in exploring opportunities of the low-carbon economy in terms of jobs growth, and assessing the skills required to reap those opportunities and jobs. These government reports have found many transferable skills between oil and gas and offshore wind (Scottish Enterprise, 2017; 2016; Arup, 2017).[27]

As noted on P.34, the Skills Investment Plan (2011: 9) demonstrates that the skills necessary for building a low-carbon economy are there – the difficulty is in accessing them. These difficulties include lack of apprenticeships in the sector with an appropriate recruitment pathway (Ibid. 9) and a lack of collaboration between universities, colleges and industry which is needed to build the resource pool needed to solve the 'technical challenges' in low-carbon industry (Ibid. 9).

Concerns have arisen due to lower pay and conditions in the renewables sector (STUC, 2019: 8, 19; FOE Scotland, 2019; OGTC, 2019). This is leading to the reluctance of workers, the oil and gas industry, and local authorities, to commit to transitioning to renewables (STUC, 2019a; OGTC, 2019).

For the Just Transition Partnership, the Oil and Gas Technology Centre (OGTC) and GMB Trade union, the reasons for the mismatch between available skills and their use in the new economy is the lack of state investment in alternatives. For these groups, local workers already have the necessary skills; the issue is out-of-date manufacturing yards and an overt reliance on attracting renewables investment from multinational energy companies through subsidies, tax incentives and support in accessing planning permissions. Instead, the OGTC highlighted the need for government energy companies or part-investment in offshore wind so as to create a viable indigenous economy for oil and gas workers looking to transition (OGTC, 2019).

Trade unions and the Just Transition Partnership call for state-led economic planning, and public ownership of energy and state investment in industrial policy such as manufacturing (Jamieson, 2019; Just Transition Partnership, 2018: 4-6). Other recommendations for the short term are tougher uses of local procurement clauses in contracts for difference and energy consents, carbon footprint of construction clauses (wind-turbine jackets are currently being shipped from Indonesia to Scotland), legislating for local content requirements, and sectoral bargaining on employment conditions (STUC, 2019: 14; Muttitt *et al.,* 2019: 52).

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[26] For example, the Scottish government's Low Carbon Economic Strategy (2010) and the 2020 Routemap for Renewable Energy in Scotland (2011) predicted, respectively, 130,000 jobs by 2020 and 40,000 jobs in renewables by 2020. Official figures for 2017 show that there are only 21,400 direct full-time equivalent (FTE) jobs in the low-carbon economy, a fall from 23,900 in 2016. See STUC, 2019: 2-3.

[27] See also the reports: Skills Investment Plan For Scotland's energy sector by Skills Development Scotland (2011: 3), Invest in Fife – Renewables (2014, 2014a, 2014b) and DeepWind Offshore Wind Cluster (Offshore Wind Scotland, 2019).

Moving forward – A whole-economy approach

According to the Programme for Government 2019, the transition envisaged under the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 and facilitated by the Just Transition Commission is a whole-economy and society approach. The commission is tasked with assessing how Scotland can reach a net zero-carbon economy by 2045 in a fair and just manner. In doing so, it must advise on how government can 'plan, invest and implement a transition to environmentally and socially sustainable jobs, sectors and economies, building on Scotland's economic and workforce strengths and potential' (Just Transition Commission, 2019*).*

The commission's work so far includes:

- First meeting in January 2019: An overview of the Scottish economy and workforce as a whole (Just Transition Commission, 2019a; 2019c).

- Second meeting in April 2019: Issues in the power sector, including the closure of Longannet power station and an examination of the taskforce model (Just Transition Commission, 2019d; 2019e; Longannet Taskforce, 2017).

- Third meeting in June 2019: Achieving emissions reductions in building and transport (Just Transition Commission, 2019f).

- Fourth meeting in September 2019: Issues in the oil and gas sector, including initiatives for the resilience of reliant cities such as Aberdeen, definitions of decent work in the sector, lack of transition alternatives (Just Transition Commission, 2019h; 2019i).

- Fifth meeting in November 2019: Issues in land and agriculture.

- Sixth meeting January 2020: Energy intensive industries (Scottish Government 2020)

The broad focus of the Just Transition Commission is enabling the development of targeted supports for previously overlooked sectors, and a more coordinated approach overall. Participants in the commission state that the commission is giving a policy space to interactions and intersections that previously went unnoticed (FOE Scotland, 2019; Prospect Scotland, 2019; OGTC, 2019). Even if the commission's recommendations do not result in calls for specific closures, it has led to the maturing of policy debate on climate change in Scotland as it pulls together previously separate policy strands for debate and discussion by key stakeholders and experts. This exposes how different government policies are inadvertently dovetailing into one another or missing opportunities.

The role of local authorities

Did the local authority/regional body:

- *Make an increase in good jobs the clear test for local industrial strategies?*
- *Use their convening power to bring together unions, employers and citizens to develop a clear vision and plan for their area?*

- *Work together with other key public-sector bodies to aggregate their purchasing power in support of local economic development?*

The taskforce approach

The Longannet Taskforce was established by Fife Council to cope with the closure of the last coal-fired power plant in Scotland, Longannet power station in Fife. The decision was foreshadowed by the desire by stakeholders to manage the transition better than that practised previously in the 1980s (Fife Council, 2019; Prospect Scotland, 2019).

In March 2015, Scottish Power signalled that it would likely close Longannet in March 2016 (it was scheduled to close in 2020), citing changes in and increased costs of the UK government's transmission charging framework as a key factor in the decision as well as a mixture of old age and higher taxes on carbon.[28]

In August 2015, Scottish Power confirmed the closure, ending 46 years of power production since 1970. In 2002, the Fife mine that formerly supplied the station was flooded, bringing to an end 500 years of coal mining in Scotland (Silver, 2018a). The station directly employed 236 people and supported an estimated 800 indirect supply-chain jobs. The plant was the largest power station in Scotland, and the WWF listed it as one of the 30 dirtiest in Europe. The closure led to a 10.3 per cent drop in Scotland's emissions (BBC News, 2018).

Immediately following the announcement of closure, Fife Council established the Longannet Taskforce to develop a multi-agency economic recovery plan to mitigate the impacts of closure locally and across the supply chain. The taskforce ran from August 2015 to May 2018, with eight meetings. (For a summary of the taskforce, see: Just Transition Commission, 2019e.)

The taskforce assessed the scale, location and timing of closure impacts and produced a joined-up response to mitigate the impacts on the workforce, local communities and businesses. It was co-chaired by the Minister for Business and Energy and Tourism (Fergus Ewing MSP and later Paul Wheelhouse MSP) and Cllr David Ross, joint-leader of Fife Council. Other key members included Scottish Power, representatives of the affected local councils, Scottish Enterprise, Skills Development Scotland, Transport Scotland, the Department for Work and Pensions, key private-sector representatives (Hargreaves, Clydeport), trades unions, community group representatives and local politicians (MSPs and MPs).

The taskforce appears to have been considered a relative success by a range of different groups, from trades unions, NGOs and businesses, considering the crisis situation involved, though it was acknowledged that more room could have been made for community representatives (Prospect Scotland, 2019; STUC, 2019; Fife Council, 2019; Just Transition Commission, 2019g).

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[28] Scottish energy companies pay more to feed into the UK grid due to cost being calculated on the basis of the distance from the centre of the grid, which is close to the English midlands (FOE Scotland, 2019).

Rather than just supporting the affected workers, the taskforce developed an Economic Recovery Action Plan, which examined how to sustain employment in Longannet and support the community in finding replacement economic activity and regional diversification. The plan sought to:

- help ensure individuals employed at the site were supported, maximising each individual's opportunity to secure alternative employment;

- support the communities affected by the closure;

- mitigate the effects on the supply chain;

- produce a master plan for the long-term future of the site, maximising its employment potential;

- consider the economic infrastructure of the local area, to identify how to create sustainable employment in the longer term; and

- consider environmental mitigation actions (Just Transition Commission, 2019e).

The taskforce's successes include:

- The taskforce brought a clear and focused remit, bringing together the key players from the public and private sectors with trades unions to co-ordinate the development of a joint, multi-agency plan to explore how to deliver initiatives to support individuals, business and communities most affected by the early closure of Longannet.

- Good numbers on job transfer to comparably high-quality employment were achieved, although the majority of replacement jobs were in other fossil-fuel employment, including the Grangemouth plastics refinery nearby. Of the 370 workers that accessed PACE skills development, 99 per cent (not including those economically inactive or who chose not to access further support) secured positive destinations in either work or training.

- The supply-chain impact on 185 companies was far less than originally anticipated, with very few companies indicating any significant impact. This was also due to the work of Scottish Enterprise with the 18 companies it account-managed. Two supply-chain events were held, providing an opportunity for companies to meet with Scottish Enterprise and Business Gateway officials to explore support options.

- Local authorities presented a costed plan seeking £9m additional resources for the effective delivery of the Economic Recovery Plan. The response in March 2017 from ministers was that 'Task Forces do not come with an automatic entitlement to additional resource but bring together key partners to work together, adding focus to on-going work and that consideration would be given to explore how initiatives in the plan could be delivered' (Longannet Task Force, 2017: 39). The Scottish government did agree to align available agency budgets to assist delivery and to identify where the allocation of existing resources could occur. This saw the allocation of £2.7m funding to Fife Council and £2.0m to Clackmannanshire Council from the Scottish government's Local Economic

Development Capital Stimulus Fund in September 2016 (Longannet Task Force, 2017: 39).

- Spanish train manufacturer Talgo committed to taking over the site (Williams, 2019). However, there are some issues with releasing the land for use by Talgo, which are in development (Prospect Scotland, 2019).

Issues

- The taskforce was developed to deal with a crisis situation and retrospectively deal with economic diversification of the region. Proactive planning was not conducted to cope with the closure, which would be considered more in keeping with a 'just transition' approach, according to the Just Transition Partnership (FOE Scotland, 2019).

- As stated above on P.123 the majority of replacement jobs were found in the Grangemouth plastics refinery nearby (FOE Scotland, 2019). The transition was therefore not a 'brown to green' just transition in that the workers moved largely to other fossil-fuel employment. However, the region itself is looking to greener development in the form of attracting a railway carriage manufacturing company to the plant alongside the building of two new railway stations (Williams, 2019; Fife Council, 2019).

In a statement to the Just Transition Commission (Just Transition Commission, 2019e), representatives stated that, following the ceasing of the Longannet taskforce in May 2018, the remaining work of the economic recovery was passed to Fife Economy Partnership (FEP). FEP is a business-led partnership which brings together people from Fife's business and public-sector organisations to identify and take forward policies and activities that help economic development in Fife.

The Longannet Site Steering Group continues to meet to take forward discussions on the future use of the site, environment mitigation and wider strategic issues regarding the Kincardine/West Fife and the Upper Forth.

The council is also exploring tourism opportunities as the 90ha site will have space for other initiatives.

Role of different actors

What roles did businesses, trade unions, local communities and NGOs have in the transition? What were their concerns? Did they have campaigns, certain asks or allegiances that may have helped or hindered transition?

The Just Transition Commission proposal was developed by the Just Transition Partnership. A campaign group was established in 2016 by STUC and Friends of the Earth Scotland with a *Joint statement on Just Transition*, drafted on 13 December 2016. Groups that later joined were Unite Scotland, UNISON Scotland, UCU Scotland, CWU Scotland, PCS Scotland and WWF Scotland (Just Transition Partnership, 2017).

In January 2017, the Just Transition Partnership (JTP) prepared a joint submission in order to influence the context of the new Scottish Energy Strategy and Climate

Change Plan (Just Transition Partnership, 2017a). The JTP later submitted formal evidence to the Scottish parliament's Environment, Climate Change and Land Reform Committee on the Climate Change (Emissions Reduction Targets) (Scotland) Bill (Just Transition Partnership, 2018).

The primary ask of the JTP was for a body that could track and monitor and make recommendations to ensure that the government's Climate Bill and policy were in line with just transition principles (Ibid. 2).

A year later, the Scottish government committed to creating the commission in its Programme for Government 2019 (Scottish Government, 2019a: 35). Six to eight months later, the commission was created and chaired by Jim Skea, co-chair of the Intergovernmental Panel on Climate Change mitigation working group.

The differences between the commission as created by government and the asks of the JTP are as follows:

- **Short term:** The largest difference in the JTP asks and the government's commission is its short-term nature. The commission is to run for only two years to discuss and take expert advice on how to move to a low-carbon economy sustainably and with social justice at heart.

- **Big picture-focused rather than an oversight body:** The JTP aim was to have an oversight-focused commission that developed immediate, tangible proposals based on tracking and examining government actions (Just Transition Partnership, 2018: 3). The Climate Change (Emissions Reduction Targets) (Scotland) Bill 2019 would place in legislation 'reporting requirements on Just Transition' such as 'how proposals and policies will affect employment in different sectors, what measures should be put in place to support the transition of the workforce and related communities, and the scale and sources of investment'. Ministers would be required to report annually on the progress (Ibid. 3).

- **Lack of statutory basis:** The commission was not placed on a statutory basis. This was a stated ask of the JTP, which sought to ensure independence of the commission from government. The commission is under the Secretariat.

- **Greater public engagement:** The commission has not been as public-facing as envisaged. It was to take evidence and host public meetings. However, the capacity for this is limited due to time and resources. Only one public meeting has been held so far in Kincardine (Just Transition Commission, 2019g).

- **Scottish Investment Bank:** The JTP is seeking an investment bank that will drive the just transition by using public and private investment. The current role envisaged for the bank under the Programme for Government is focused on 'sustainable inclusive growth' rather than explicitly supporting climate action or a just transition. The bank will provide a catalogue of projects that private investors can invest in, with £3bn of government funding (Just Transition Partnership, 2018: 5).

- **Public Energy Company:** The Programme for Government 2019 has announced a not-for-profit public energy company for Scotland, due to high energy prices.

> This is likely to take the form of a retail-end supplier (FOE Scotland, 2019). However, the JTP has called for the company to take a larger role in grid and generation ownership, developing municipal energy and local network grids for communities, as in Germany (Just Transition Partnership, 2018: 5).

The JTC has since been expanding its campaign into calling for greater public ownership in the renewables sector and measures to secure more and higher-quality jobs for regions needing development:

> For the Partnership, a Just Transition means moving to a modern low-carbon economy in a way which protects workers' livelihoods, creates a new industrial base and delivers a fairer Scotland. It is calling for climate change obligations to be used as the basis of a new industrial policy in order to enable Scotland to reap the full economic benefits of the move to a low-carbon economy. Such intervention is necessary, it argues, because despite a significant shift to electricity generation from renewables over the previous 20 years, projected jobs growth has not been realised.

Rather, under the UK and Scotland's present model of energy policy and economic development, manufacturing jobs have increased in other countries where turbines are made and operating profits accrued to multinational energy companies which dominate the electricity markets (Muttitt *et al.*, 2019: 53).

The JTP believes that a Just Transition must be guided by the following:

- There is employee, union and community participation in the preparation of plans for the transition.

- Employment levels must be maintained and livelihoods protected.

- Affected communities and regions will be supported through the transition.

- Training and retraining will be funded.

- Measures to tackle disadvantage in the labour market will be included.

- Options for public and community ownership or partial stakes in flagship projects and enterprises will be pursued (Just Transition Partnership, 2017a: 1).

The presence of key actors or interventions

Were there any key events that shifted debate?

The following events have led to a shift in debate:

Past experiences of transitions

The present-day responses of many stakeholders to Scotland's just transition approach are framed by two intertwined experiences of past transitions.

The difficult transition endured during the closure of the coal-mining industry and deindustrialisation in the 1980s serves as 'a stark warning of the dangers of rapid

industry decline where no adequate transition measures and little support is put in place' (Muttitt, 2019: 44; Silver, 2018; 2018a; see also Foden *et al.*, 2014; Beatty *et al.,* 2019)

This transition was undergone by Scotland as oil and gas reserves off Scotland's coast in the North Sea were discovered and privatised by the UK government. Scottish interest groups such as the Scottish National Party, trade unions and local business groups criticised the UK government for not setting up a state company to exploit the resources, not establishing a state investment fund that would have led to local employment and investment in a time of need, and not engaging in economic industrial planning that could have revitalised failing Scottish manufacturing and industrial employment (Wright & Boué, 2017: 337-338; McPhee, 2018; Mitchell, 2013). The UK government also broke up state-owned shipyards with the skills and ability to take contracts in the oil and gas industry. This approach was in direct contrast to that being taken by other fossil-fuel-producing countries at the time, and against the wishes of many Scottish people. The anger that resulted in Scotland 'is still potent, emotive and bound up with the identity of countless communities along the nation's two great river estuaries' (Silver, 2018).

The BiFab dispute

The BiFab dispute (detailed in Box 5) is an example of how these past experiences colour present-day responses by communities facing today's transitions, triggering public debate. BiFab is an example of the discrepancy between the boom in renewables and local offshore and onshore wind projects, and the high unemployment in former fossil-fuel communities with transferable skills. The closure of Longannet power station in Fife happened at the same time as the failure of the BiFab yards to secure contracts. This led to debate in Scotland on the need for 'direct state intervention to ensure a just transition' and the role of the Just Transition Commission in delivering that.

The oil and gas downturn

The global downturn in oil and gas employment has led to major job losses in north-east Scotland, as detailed above. This has led to the industry and workers looking to new sustainable employment opportunities.

Formation of Just Transition Partnership

The formation of the Just Transition Partnership (JTP) has led to a coordinated campaign across environmental organisations and trade unions on just transition and climate action. The JTP has been very successful in framing public debate on climate and employment, as detailed above.

Skills

What structures or supports were put in place to:

- *Collect data on skill-sets in the closing plant and surrounding area, who collected this data, was it shared and how?*

- *Match skills with other enterprises/organisations in the area/region, etc?*

- *Support workers and the community on social welfare or special employment measures between jobs?*

- *Contact and engage regional (or new) educational institutions in the transition?*

- *Build skills/enterprises for low-carbon jobs (from renewables to music, etc)?*

- *Encourage enterprise and new thinking?*

Resources and investment

- What resources were put aside for the transition?

- What investment opportunities were used/given/sought?

- Was EU, State, the relevant fossil-fuel company or private funding leveraged?

Skills for transition

The Scottish government and associated bodies such as Scottish Enterprise, Skills Development Scotland and Invest in Fife have made significant investments in exploring the opportunities of the low-carbon economy in terms of jobs growth, and assessing the skills required in order to reap those opportunities. Reports include:

- Skills Development Scotland (SDS) (2011), *Skills Investment Plan for Scotland's Energy Sector,* 2nd edition, Glasgow: Skills Development Scotland. In developing this plan, the SDS worked with numerous skills academies in the energy sector (Ibid. 3).

- Invest in Fife – Renewables has a number of detailed reports, which detail job opportunities and skills in the region to suit low-carbon industry, including:

  o a company directory of suppliers;

  o *Renewable Energy in Fife: Skills and Supply Chain* (2014);

  o *Locating your Offshore Wind business in Fife* (2014a); and

  o *Offshore Wind Operations and Maintenance* (2014b)

- Scottish Enterprise (2016), *Offshore Wind: Oil and gas 'Seize the opportunity' Guides*, BVG Associates (BVGA), Glasgow: Scottish Enterprise.

- Scottish Enterprise (2017), *Oil & Gas Diversification Opportunities: Offshore wind,* BVG Associates (BVGA), Glasgow: Scottish Enterprise.

Despite the clear crossover skills potential of the fossil-fuel and low-carbon economy, and increasing renewables in the energy mix, the transition of workers from 'brown to green' jobs is not occurring.

As noted above on pages 34 and 125, the Skills Development Scotland Skills Investment Plan from 2011 notes that skills suitable for the low-carbon economy are there, yet there is difficulty in accessing them (Skills Development Scotland, 2011: 9).

Box 5:   Harnessing opportunities for local employment: the case of BiFab and Neart na Gaoithe

Burntisland Fabrication (BiFab) is a Scottish company that 'delivers major fabrication works from facilities in Scotland for the oil and gas, renewable and infrastructure industries'. It is considered by trade unions and climate NGOS as an example of 'a local company well positioned to enable its employees to shift from work in the carbon-intensive economy to renewables without sacrifice of wages and conditions, ie a Just Transition' (Muttitt *et al.*, 2019: 49).

At its peak, BiFab directly employed a workforce of 400, alongside 1,000 contractors. However, the company has struggled to benefit from the growth in renewable energy in Scotland, reaching a crisis point in November 2017 when difficulties with a single contract to supply jackets for the European Investment Bank-funded Beatrice Windfarm saw the firm facing administration and £50m in losses (McLaren, 2018).

After public protests, the Scottish government responded with a rescue package, including a £15m emergency loan and part share in partnership with a subsidiary of Canadian-owned JV Driver. However, BiFab continues to face some hurdles in securing contracts (Black, 2019).

In 2015, Irish company Mainstream Renewable Power received consent for the 450 megawatt Neart na Gaoithe (NnG) offshore wind development of 75 turbines. The project was worth up to £2bn and was to be located 10 miles off the coast of Fife (Scottish Parliament, 2019a).

The scheme benefits from a 15-year, inflation-linked power supply deal at 2012 prices. The most recent of such deals have been set at half that rate in the UK (Brennan, 2018). In exchange for this 'contract for difference', Mainstream committed to local procurement. It was hoped this deal would create around 500 jobs for Fife and deliver £540m to the local economy. The majority of jobs were to be filled by BiFab's mothballed fabrication yards at Methil and Burntisland (McPhee, 2019).

In May 2018, the contract was sold by Mainstream to French utilities company EDF Renewables for around €600m (Brennan, 2018). In 2019, EDF reneged on local procurement and chose Italian oil and gas contractor Saipem, stating that no Scottish company 'currently has the capability to manufacture and supply all the steel work for the NnG project'. The wind turbine jackets would instead be manufactured in Indonesia. EDF later 'brokered talks' between BiFab and Saipem, leading to eight turbines being made in the BiFab yards (Black, 2019).

There are skilled workers in Fife, but the yards need extra investment and supportive infrastructure. Trade unions and the community argue that this extra investment must come from government. If government does not invest, they state, the opportunity to reap the benefits of the new low-carbon economy will be lost just as it was lost with the oil and gas sector (STUC, 2019; 2019a; Scottish Parliament, 2019a). Government has responded: 'we have a minority shareholding in BiFab, but we do not participate in operational management decisions, and staffing levels are a matter for BiFab to consider' (Scottish Parliament, 2018).

For the Just Transition Partnership, the BiFab dispute is considered as an example of a 'joining up of all the different strands' of a just transition (FOE Scotland, 2019) as transitioning to a renewable energy system is not necessarily a pathway to jobs as it depends how that transition is managed. Scottish businesses, trade unions, NGOS all mention the need for government to take intentional proactive action to prepare Scotland to take advantage of the opportunities of the new economy, rather than reactive in cases of job losses when they arise (FOE Scotland, 2019; OGTC, 2019; Jameison, 2019; STUC, 2019a; McPhee, 2018).

Transition Training Fund

In order to cope with the 2014 downturn in oil and gas, the Scottish government established the Transition Training Fund with an initial £12m of government funding (Scottish Government, 2016).

The aim of the fund was to manage oil and gas workers during a momentary downturn in oil prices. It was not created to transition workers into low-carbon employment (Scottish Government, 2016) and is therefore not an example of a "brown to green" transition.

The fund had a high success rate, with 68 per cent of those surveyed now in employment (Transition Training Fund, 2019). However, the figure is skewed by a high turn-away rate. The overall number of applicants was 10,582, of whom only 4,088 were successful. Of that 4,088, 68 per cent found employment. Of that 68 per cent, 56 per cent are still employed in the oil and gas sector. Of the 596 applicants who transitioned to a job outside of oil and gas, the breakdown provided is 31 per cent in skilled trades, 12 per cent in transportation and 13 per cent in renewables or other engineering. The carbon impact of these new jobs is not given (Transition Training Fund, 2019)

The Transition Training Fund is not being extended in its current form as, once the industry stabilised in 2016, the fund was wound up (Skills Development Scotland, 2018; OGTC, 2019).

There is some discussion of skills development to cope with the transition away from oil and gas, but it is vague. According to the Oil and Gas Technology Centre (2019), there is (as of November 2019) no targeted support from government for the transition of oil and gas workers into low-carbon industries.

Other training funds

Since the wind-up of the fund, Skills Development Scotland has given evidence to the Just Transition Commission stating that it would like resources to conduct the following (Just Transition Commission, 2019i: 35-36):

- Develop a Climate Change Skills Action Plan to focus on taking an evidence-based approach to identify priority actions to support the development of the skills required now as we seek to transition to a low-carbon economy, and in the future.

- Review skills: Planning Model and Skills Investment Plans to ensure that there is a focus for investment in areas such as the circular economy and renewables as a practical response to the climate-change emergency across all relevant sectors.

- Amplify the focus on climate change in the Skills 2035 programme of activity. The aim of this would be to raise awareness and discussion at the level of the Strategic Board, SDS/SFC board and executive teams. It would build in climate change as a core part of the narrative on future skills.

- Develop the above approach through the Just Transition Commission, to focus on business engagement and developing a stronger evidence base on skills and workforce issues and, in return, provide thought leadership on the knowledge,

skills, attitudes and behaviours required to drive more low-carbon and circular thinking. This could form the outline of a strategy to initiate development of the knowledge, skills, attitudes and behaviours to drive realisation of the low-carbon and circular economy across Scotland.

Just Transition Commission

The commission is made up of voluntary members. It is anticipated that around ten meetings will take place between the inaugural meeting in January 2019 and January 2021.

Longannet Taskforce

The taskforce took much time and investment from the civil servants and stakeholders involved (Fife Council, 2019). Funding of £9m was sought by local councils for an Economic Recovery Plan. While this plan was not initially financially resourced, the Scottish government did agree to align available agency budgets to assist delivery and to identify where the allocation of existing resources could occur, which resulted in £2.7m funding to Fife Council and £2.0m to Clackmannanshire Council. This was directed from the Scottish government's Local Economic Development Capital Stimulus Fund in September 2016 (Just Transition Commission, 2019e: 3).

Assessment of success and key lessons for Ireland

Has the transition received local support? Is the plan hailed as a local, regional, national or international success?

Scotland's transition is still in process and so it is difficult to pull decisive measures of success or recommendations for Ireland at this stage.

A major issue that emerged in interviews and in the literature is that, despite the clear crossover skills potential of the fossil-fuel and low-carbon economy and increasing renewables in the energy mix, the transition of workers from 'brown to green' jobs is not occurring.

The Just Transition Commission is helping to tie together different policy strands, and allows for discussion of issues that previously did not have a space in which to be expressed. This is beneficial and stakeholders hope it will lead to a more coordinated approach on climate action and transition.

The Longannet Taskforce was relatively successful, in that it gave support to the community, ensured employment for those at Longannet who asked for it, supply companies were assisted by Scottish Power (SP) to find alternative work in other SP companies, and new investment was attracted to the region by the local authority and Scottish government. An important aspect was that the region was not left to transition on its own, as happened in previous deindustrialisation and mine closures from the 1980s.

However, the taskforce was not afforded enough financial assistance to achieve the transition plans created with stakeholders that also included a low-carbon focus. Local authority powers were not strengthened to deliver the plans developed locally and local community participation was consequently weakened as a result.

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