

# Expert Report on the Workforce Transition Implications of the proposed Mount Pleasant Optimisation Project– SSD-10418.

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This report is provided in response to an expert brief provided to me by the Environmental Defenders Office (EDO) acting on behalf of Denman, Aberdeen, Muswellbrook and Scone Healthy Environment Group Inc (DAMSHEG), dated 15 June 2022. EDO has engaged me to provide independent expert advice in relation to workforce transition associated with the Hunter region coal industry, specifically as it relates to the Mount Pleasant Optimisation Project (Project).

I have read the Expert Witness Code of Conduct contained in Schedule 7 of the *Uniform Civil Procedure Rules 2005*, and agree to be bound by it. This report contains information of which I believe the Independent Planning Commission should be aware.

My qualifications are as follows:

- Senior Lecturer, School of Environmental and Life Sciences, University of Newcastle, Australia
- Adjunct Lecturer, Krieger School of Arts and Sciences, Johns Hopkins University, United States
- Senior Fellow, Earth System Governance
- PhD in Environment and Geography, Macquarie University, Australia
- Author of more than 30 peer reviewed journal articles and other publications.

## Scope

In this report I address several issues raised by review of the Project's assessment documentation. These relate to:

- (i) the adequacy or otherwise of the assessment's consideration of potential impact of external factors on the Project's ability to provide employment in the Hunter region in the longer term,
- (ii) the likely social consequences for the current workforce in the Hunter region,
- (iii) the compatibility or otherwise of the project with social and environmental sustainability of the Hunter region, and
- (iv) other relevant matters.

## Summary

There is little prospect of the proposed Mount Pleasant Optimisation Project (the Project) creating any jobs of any longevity. Instead, approval of the Project would likely lead to the perverse outcome of limiting Hunter communities' prospects for a just and orderly transition

away from coal mining to sustainable regional employment. At a time of fundamental change in the energy sector, it will do so by drawing focus away from the imminent local and regional dimensions of the socio-economic transition away from fossil fuels. The transition is late – given the extent to which we have already changed the climate – but the transition is upon us, and sorely needed, for there is no plausible scenario in which we persist in burning fossil fuels at scale. The challenge is recognised in domestic and international commitments already made by Australia and other states, including in the Paris Agreement (UNFCCC, 2015), to drive greenhouse gas emissions rapidly to net zero. The path to net zero emissions laid out by the International Energy Agency specifies explicitly that there is no space in the path to net zero emissions for any further coal mine extensions after 2021 (IEA, 2021). Coal-fired electricity will need to be phased out by 2040 (IEA, 2021). In short, transition presents a profound challenge.

We are at a point now where more of the same is not helpful for workers and their communities in the Hunter. More of the same in fact undermines efforts to achieve sustainable employment in the Hunter over any meaningful timeframe. By ‘meaningful timeframe’, I mean a timeframe that benefits workers and their communities in the Hunter into the longer term. The Project’s risks to Hunter workers and communities are not made explicit in the Project documentation, and in my opinion this has been achieved through the documentation employing an unhelpfully narrow focus, thus consistently missing or mischaracterising key ecological, market and political realities, and the suggestion that the context for the Project is stable when it is in fact highly dynamic. It is unfortunate the Project’s assessment documentation is constrained in a way that excludes consideration of the wider context in which the Project is being proposed.

## A brief historical context

A brief historical context is helpful for illustrating why transition presents such a challenge for historical coal mining communities – and industrial societies more broadly. Since the beginning of the Industrial Revolution in the mid-eighteenth century, industrial societies have increasingly organised their economies on the basis of continued exponential increases in fossil fuel consumption, beginning with coal, and later with oil and gas. Fossil fuel consumption has, therefore, been at the centre of increasing economic activity for around 250 years now – a short period in human history, but long enough for fossil fuel consumption to have become established as an accepted assumption in contemporary public policymaking.

However, continued and increasing consumption of fossil fuels is the primary cause of climate change (IPCC, 2022), a globally coherent phenomenon that threatens life as we know it. By ‘life as we know it’, I mean a planet whose basic functioning and natural systems continue in ways that are both familiar to us, and relatively stable.

And that presents a challenging paradox: continuity of life as we know it – humans flourishing in a planetary environment that is familiar, and relatively stable, is at stake, and that continuity can only be achieved through profound change to the way we organise ourselves socio-economically (Phelan, Henderson-Sellers & Taplin, 2013).

## Accelerating ecological change

Increases in the frequency and intensity of extreme weather events are only one example of increased planetary system instability caused by climate change, and so their utility for representing the full scale of climate change's current and future impacts is limited. However, they serve well as an example because they are easily conceptualised and their impacts are easily perceived. To illustrate with reference to catastrophic flooding earlier this year in northern New South Wales and south-eastern Queensland, former Prime Minister Scott Morrison was quoted in the media at the time saying that "we are dealing with a different climate to the one we [sic] are dealing with before... Australia is getting hard to live in because of these disasters" (in Giannini, 2022). In relation to a more recent round of flooding, the fourth round of catastrophic flooding in 18 months, this time centred on the Sydney basin, NSW Premier Dominic Perrottet has suggested that the concept of a 'one in 100-year flood' may no longer be useful (MacDonald, 2022).

The NSW Government notes that climate change is making extreme weather events more severe (Adapt NSW, 2022). And extreme weather events come at financial cost. Nationally, the costs of extreme weather events are expected to increase markedly, from \$38b annually in 2021 to between \$74-94 billion by 2060 (reflecting low and high emissions scenarios, Deloitte, 2021).<sup>1</sup>

To reiterate the paradox of meeting the climate change challenge: continuity of life as we know it – familiar, and relatively stable – is at stake, but maintaining that continuity requires profound change in the way we organise ourselves socio-economically. For communities in the Hunter, achieving that transition in a way that is just and orderly is a key priority.

The Project's documentation suggests a fixed understanding of Earth and its climate. For example, the Environmental Impact Statement's (EIS's) section on Hazard and Risk includes the note that 'The bushfire season in the Muswellbrook BFMC area is generally from September to March' (EIS, section 7, p.7-153). However, consistent with climate change driving ecological change, recent research has demonstrated that the bushfire season in Australia has extended by around one month (Jones et al., 2022). As discussed below, climate change will increasingly drive economic costs including through limiting across multiple sectors workers' potential income during their lifetimes, and through increased instances of business interruption (Mallon, 2021).

## Accelerating change in the wider energy policy context

In recent years, and at accelerating pace, the wider climate and energy policy context has been changing markedly. In this section I review the wider policy context in which the Project is proposed. The policy context comprises international, national and state scales, and government and private sector actors.

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<sup>1</sup> Other drivers for increased costs are increases in population and real estate values; however, the key role of climate change is evident in the range of values spanning low and high emissions scenarios.

The Project's environmental assessment provides a review of the likely impact on the Project of key external climate policy contexts such as current pledges made by Australia, its key trading partners and other states under the Paris Agreement.<sup>2</sup> The Paris Agreement commits signatories to:

Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change (UNFCCC, 2015).

To achieve this policy goal, Australia is required to drive down emissions rapidly, to zero net emissions. Australia's major trading partners are similarly required to drive down emissions rapidly. One way or another, coal mining in Australia will be wound down soon and rapidly. Consistent with the International Energy Agency's 2021 assessment, beyond 2021 there is no realistic scenario for achieving net zero emissions by 2050 in which any country increases rather than winds down its capacity to mine coal. In addition, coal-fired electricity generation must be phased out by 2040.

Climate policy in Australia has presented as a seemingly intractable challenge over several decades. Nevertheless, in recent years, the pace of change in climate policy, at federal and state level has accelerated.

Federally, and in marked contrast to recent history, major political parties across the political spectrum went to the recent Federal election expressing bipartisan support for emissions reductions. Minor parties and newly elected independents support even stronger and more rapid reductions. Since the election, the Federal government has increased Australia's climate ambitions, increasing its commitment through the Paris Agreement from 26-28% to 43% on 2005 levels by 2030, notably with broad industry support. Australia has for more than two decades been a prominent laggard in international climate negotiations, and so this shift at the federal level is significant. The new commitment federally begins to bring Australian climate policy into alignment with other member states of the Organisation for Economic Cooperation and Development (OECD, i.e., the group of industrialised countries).

At state level, the NSW Government has a net zero emissions strategy and is implementing measures to support workers and communities in coal mining areas to transition away from coal mining and coal fired power production. One example is the NSW Government announcing earlier this year a package to create 3,700 new jobs in clean energy sector in the wake of the announced early closure of the coal-fired Eraring Power Station at Lake Macquarie. The state has announced it will invest \$250m over five years to create a further 500 jobs in local manufacturing of components for the renewables sector such as wind towers, electrolyzers and batteries. The state has also announced it will spend \$300m over

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<sup>2</sup> Note the Project's documentation (EIS, section 7, at page 7-160) unhelpfully misquotes the Paris Agreement by neglecting reference to 1.5°C.

10 years to create 500 more jobs through expanding the state's clean manufacturing base – in particular the green hydrogen industry.

In short, the wider state, national and international policy context in which coal mining in the Hunter region is changing, and at an accelerating rate. The review of climate policy provided in the Project's documentation is limited to carefully arguing that expanded capacity to mine coal at Mount Pleasant is presently legal. However, the review does not address the fact that increased mine capacity is inconsistent with achieving agreed climate targets.

Again, the Project's documentation suggests the policy context is stable when, like the ecological context, it is increasingly dynamic. To illustrate: at the discussion of greenhouse gas emissions, the EIS refers to Australia's earlier Paris commitment, i.e., a reduction on 26-28% in emissions on 2005 levels by 2030, rather than the newly strengthened commitment of 43% (EIS, section 7, p.7-160). This statement was true at the time of drafting the EIS, and I simply make the point that even in the short time since then it has already been superseded.

### Accelerating change in key industries: energy and finance

While governments have carriage of public policy formally, the private sector also plays a role in climate governance, i.e., the sum of all the processes and interactions through laws, norms, power and language that influence climate outcomes. The role of key actors in two industries warrant careful attention. The first is the coal industry itself. Major mining houses, such as BHP Billiton and Rio Tinto are exiting the coal mining industry, as they pursue efforts to decarbonise their businesses.

Again, the Project's documentation suggests the market context is also stable, when it too is highly dynamic. BHP's nearby Mt Arthur mine provides an illustration of how rapidly the coal market context is changing. Mining began at Mount Arthur twenty years ago, and for the majority of its life, the mine was valued as multi-billion dollar asset. However, early last year, in response to struggling to find buyers for the mine, BHP cut its value from \$2billion to around \$400million. This year, still without any interest from buyers, BHP has announced it will close the mine this decade, 15 years early (Phelan & Crofts, 2022).

The second is the financial sector. In recent years both banks and insurers have begun to limit their engagement with the coal industry. One example is banks in recent years beginning to refuse finance for new coal developments, such as Australia's 'big four' lenders (and others internationally), refusing to provide finance for Adani's coal developments in the Galilee Basin, Queensland. Another example is increasing numbers of major insurers internationally (e.g. Swiss Re, Munich Re, AXA, Allianz) withdrawing investments in the coal industry, as well as refusing to underwrite new coal infrastructure.

My considered opinion is that while the Project proposes to extend production at Mount Pleasant through 2048, this will not materialise in practice because the climate governance context in which the mine operates, through both the formal policy context and the actions of key private sector players, is highly unlikely to remain conducive for coal mining through the proposed life span of continued operations at the mine. As such, and despite the Project's

assessment claiming otherwise, there is no real prospect of the mine offering employment opportunities through to 2048. Yet, and as discussed below, extending the coal mining at Mount Pleasant will likely instead have the perverse outcome of inhibiting the achievement of desirable employment outcomes through the transition away from fossil fuels in the Hunter. That presents a material risk for workers and their communities – that they are ‘left behind’ through the transition away from coal.

## Just transition in practice in the Hunter

Just as exponential increases in fossil fuel consumption have been central to increasing economic activity more generally over 250 years, coal mining has been a central economic activity in the Hunter region for many generations. Planning and executing a shift away from coal mining is therefore a significant and substantial challenge. The closure of BHP’s steelworks in Newcastle in 1999 provides a useful regional example of the value of planning in achieving transition (Lewer, 2015).

The concept of just transition is helpful in planning and executing a shift away from coal mining (Evans and Phelan, 2016). A just transition is one where workers and communities that have been strongly dependent on fossil fuel exploitation are not left behind through the transition of a workforce from the coal industry to alternative employment offering good jobs and dignity of work.

The approach is widely recognised. For example, the 2015 Paris Agreement notes “the imperative of a just transition” for affected workforces, with “the creation of decent work and quality jobs” to replace those lost through shifting away from fossil fuels (UNFCCC, 2015).

The NSW Government also recognises change is coming and has in recent months announced \$25 million a year for its Royalties for Rejuvenation Fund. The fund is intended to “ensure coal mining communities have the support they need to develop other industries in the long-term”.

The practical implementation of just transition is a live consideration in mining communities in NSW, other states in Australia, and internationally. Last year, communities in the Hunter Valley identified three priorities as being key to a just transition away from coal (see Appendix):

1. the need for a local coordinating authority
2. funding for a “flagship” job-creation project, and
3. more resources for technical and vocational education.

I briefly introduce each of these priorities below for two reasons. The first is to provide a tangible example of what the transition away from fossil fuels entails, and what that transition implies for sustainable employment in a policy context driving to net zero emissions. The second reason is to illustrate through example the paucity of the analysis provided by the Project’s assessment documentation in relation to employment futures in the Hunter.

The assessment documentation does not engage meaningfully with the wider changing policy context, proceeding instead with only passing reference to the profound socio-economic shifts climate change is driving. To explain: the documentation sets up a false binary, with the two options presented being the Project's approval, or not. In fact non-approval leads not simply to an absence of this Project, but instead the creation of the space in which alternatives will inevitably evolve. And alternatives will evolve; even if the Project were to go ahead, it will come to a conclusion, likely sooner rather than later. Sooner or later, workers and their communities will – whether proactively, or reactively, or through a combination of both – move beyond coal mining in the near future.

With that said, here are three priorities for effecting a just transition away from fossil fuels, as generated by communities in the Hunter.

### **1. Establish a local coordinating authority**

Local coordination is important to ensure solutions reflect a community's needs, skills and opportunities. This means those who work for the authority know the region and are in touch with the stakeholders from industry, government, education and community organisations to identify local strengths and competitive advantages. A local authority can also coordinate with other authorities to ensure fossil fuel communities are not competing against each other by pursuing job creation in the same new industries.

Note that the Hunter is not the only region globally, or even in Australia, that is transitioning away from fossil fuels. This both underscores the urgency of transition in the Hunter and suggests that models for just transition practice may be available for reference. The La Trobe Valley Authority, established in 2016, provides an example of a local coordinating authority. The Victorian Government established the Latrobe Valley Authority in 2016, following the unexpected announcement of the closure of the Hazelwood power station in 2017. Beginning with \$270 million in funding, the authority is headquartered in Morwell, in the heart of the Latrobe Valley's coal-mining industry.

### **2. Fund flagship job-creation projects**

Flagship projects give tangible direction to the transition and create hope for the future. A flagship project provides an anchor point, or a fulcrum point, around which other industries and businesses can coalesce.

Again, an example from elsewhere in Australia is illustrative. In the coal-mining community of Collie in Western Australia, industry, government and university researchers working together on a project to make 'Colliecrete', a more sustainable form of concrete made from fly-ash, a waste product from the burning of coal by the local coal-fired power stations.

### **3. Expand vocational training**

Retraining is crucial to new industries flourishing, and for workers to find new jobs. Shortages of skilled and experienced staff are hampering development in renewable energy industries (CEC, 2020). Research for the Clean Energy Council (CEC, 2020) recommended the vocational

educational system needs reviewing, because “existing training systems are not meeting industry needs”.

### Looking forwards not backwards, because transition is upon us

Socio-economic transition away from coal is upon us. Recognising the extent to which the climate is already changed (IPCC, 2022), and therefore, the urgency now needed in shifting away from fossil fuels in order to meet Paris Agreement commitments noted earlier, the transition is late, but welcome all the same, for there is no plausible scenario in which we persist in burning fossil fuels AND life as we know it continues. This is a major challenge that requires substantial planning and engagement across communities, industries and government. That planning and engagement is already underway, as evidenced through the NSW Government establishing the Royalties for Rejuvenation Fund, and through work by civil society groups (e.g. Hunter Renewal and the Hunter Jobs Alliance (2022)) to engage workers, unions, employers and communities in ongoing public discussion towards shaping the region’s transition.

We are at a point now where more of the same is not helpful for employment in the Illawarra. The proposed expansion of the Mount Pleasant mine is at odds with the transition away from fossil fuels facing the Hunter.

In my considered opinion, approval of the Mount Pleasant proposal will serve to undermine the Hunter’s transition away from fossil fuels. It would do so two ways. First, by holding out a false hope that there is a future for coal industry jobs in the Hunter. Second, by undermining the intensive focus required of all stakeholders in ensuring a just and orderly transition for workers and their communities. The Hunter’s future will build on the skills and expertise that have been established over generations of coal mining, but it will transcend coal. That forward-looking focus is essential for effectively planning and executing a just transition in the Hunter.

### A wider view for Commissioners

If Commissioners might allow themselves a wider view, the cost – in jobs – of the Project should also be considered. The focus on the proposal’s impact on jobs (jobs in the construction phase, and ‘ongoing’ jobs for the life of the mine) is unhelpfully limited, and is in fact one-sided: the assessment focusses only on the limited number of jobs the proposal would create, without reference to the limiting impact of climate change on employment.

The proposal will necessarily accelerate climate change, and climate change impacts are increasingly disruptive across employment in multiple sectors, and across Australia. Jobs in reef tourism in Queensland, for example, are threatened by climate change, through increased prevalence of coral bleaching making the Great Barrier Reef a less attractive tourist destination. In a very real sense, proposed jobs in coal mining in the Hunter would undermine existing and future jobs in other industries in the Hunter, across NSW and other states.

The impacts of climate change on employment will be felt across all industry sectors, and the costs of climate change on future employment in Australia have already been calculated. Last year the Federal Court accepted evidence provided to it on the future financial cost of climate change to young people (Mallon, 2021). Evidence was provided in the context of a bid by a group of Australian teenagers seeking to prevent then federal Environment Minister Sussan Ley from approving an extension of Whitehaven's Vickery coal mine near Gunnedah. The children were unsuccessful in their bid to constrain the Minister's actions, but the evidence was uncontested by the Federal Government's legal team and accepted by the judge, and its uncontested reception represents an important shift. The financial impacts of climate change are no longer a vague future loss – they are now a tangible, quantifiable harm (Phelan & Svenson, 2021).

Costs were calculated in three areas: reductions in property wealth, loss of earnings, and health impacts. In relation to loss of earnings, partial, conservative calculations were applied to the period 2040 to 2060, when the applicants would be aged between 20 and 58 years. This part of the analysis focused on how climate change would affect a young person's ability to work.

On hot days, the body must expend extra energy dissipating heat (usually by sweating). As noted by the International Labour Organisation (ILO, 2016), exposure to these conditions for extended periods is risky, and to endure them people must drink water and take regular breaks, leading to lower productivity.

Rising temperatures under climate change will increase the number of days where the ability to work outside safely will be hampered. The analysis found around 30% of today's children will work in climate-vulnerable jobs, such as agriculture and construction.

People in these jobs will be less productive, and the cost to employers will eventually be passed to employees through lower wages, leading to an estimated loss of about A\$75,000 over a young person's working life.

Climate change and associated extreme weather will also disrupt the infrastructure businesses rely on, such as electricity, telecommunications and transport. Again, these productivity losses will eventually be reflected in employee wages. Repeated extreme weather damage to business continuity will lead to an estimated average A\$25,000 annual loss per person over the working life of a child today.

Climate change will also deliver generalised impacts to the economy. The analysis here was also partial, focussing only on agricultural and labour productivity, and drawing on existing research to estimate losses of about A\$60,000 per person over their lifetimes.

In summary, partial, conservative calculations found today's children will forego between A\$125,000 and A\$245,000 each due to the climate impacts noted above, with the most likely cost at around A\$170,000 for each child. However, the Project's assessment makes no mention of the wider loss of earnings to which the Project will contribute. My considered opinion is that the value of the small number of time-limited jobs the Project would create is

far outweighed by the ongoing drag on future earnings in Australia attributable to climate change.

It's worth noting explicitly that the costs calculated above will also apply to workers in the Hunter: workers in the Hunter and their communities desperately need Australia to achieve net zero emissions by 2050. Workers in the Hunter and their communities also need other countries – including countries currently importing coal from Australia – to also urgently down their emissions to net zero by 2050.

## Conclusion

There is no real prospect of the mine offering continuing employment opportunities. Planning for continued coal extraction in the Hunter region effectively means planning to leave behind the workforce dependent on coal industry jobs, and their communities.

In contrast, just transition initiatives already underway in the Hunter region offer opportunities for sustainable and ongoing employment. In the same way that it is prudent to prepare for inevitable bushfires and other climate-implicated weather hazards, it is essential for the Hunter region to prepare for life beyond coal.

The aim of a just transition is to recognise the Hunter's existing strengths, build on them, and ensure no one is left behind. Climate change is a globally coherent phenomenon, and so looking beyond the region, there is a clear connection between the coal mined in the Hunter, and climate change impacts manifest elsewhere across Australia and beyond. In my opinion, a just transition here in the Hunter also means the Hunter taking responsibility for the global impact of coal mined there.

Seeking now to expand coal mining capacity in the Hunter through the Project, in effect, is to choose more of the same, and by so doing, leaves the local workforce and their communities vulnerable to an increasingly uncertain future. Negative impacts will be felt further afield too, as the Project contributes to climate change's limiting effect on employment and earnings more widely. It is unfortunate the Project's documentation does not properly consider the ecological, policy and market contexts in which it is proposed.

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## Appendix

Hunter Renewal and Hunter Jobs Alliance. 2021. Future-Proofing the Hunter: Voices from our Community. Accessible at <https://www.hunterjobsalliance.org.au/publications>.



# Future-proofing the Hunter

Voices from our community

A REPORT PREPARED BY HUNTER RENEWAL & HUNTER JOBS ALLIANCE



We have to understand the pace of change that will occur in the makeup of industry in the Hunter Valley over at least the next ten years, and plan for, and reposition ourselves to take advantage of these changes.

I'm excited that with our highly skilled, innovative and diverse labour force, we can attract new business to our region – business types perhaps we haven't even thought of yet, and so make the Hunter Region a place known for things other than just coal mining.

We have done this before – compare us now to how the region was when it was reliant on the BHP operation. We already have the experience and expertise to transition to a new and exciting future.

Lake Macquarie resident (survey)



**HUNTER Renewal**

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# Executive summary

**In May 2021 then-Deputy Premier John Barilaro announced that New South Wales would establish a Royalties for Rejuvenation Fund and statutory Hunter Expert Panel to fund and oversee diversification and assist the region's adjustment to changing coal markets. This is a welcome development for the Hunter.**

Between August and October 2021, Hunter Renewal and the Hunter Jobs Alliance convened five workshops complemented by an online survey to gather community input, ideas and priorities for this new body and funds. This report collates and distills the priorities and concerns of ordinary people and workers around the Hunter region.

Our engagement with people of the region shows that, overwhelmingly, people understand and accept that change is coming and that leadership by government, informed and directed by local knowledge, is necessary to weather that change.

Participants in the workshops and survey reflect the range of interests and perspectives of locals, including workers in sectors that will be affected by structural change in the coal industry, people working in social services, education and health, people invested in community organisations and from a range of socio-economic backgrounds and a variety of life experiences. What they had in common was a willingness to engage in the work of making a positive future for the people and communities of the Hunter region.

***"I worked in mining for 15 years so I know what's happening. Many of the services companies have been planning for years. They have already started to do the work."***

Muswellbrook workshop participant

The most common issues of concern were job security, protection of the environment and climate change, and the urgency of transition planning. More broadly, participants in our workshops highlighted existing challenges and fears: housing affordability and homelessness, the importance of public and accessible vocational education, existing inequality, and environmental problems such as air pollution and land degradation.

We asked participants to discuss and rank 22 ideas and recommendations from work already undertaken to consider the challenge of diversification in the region. Of these ideas, ten priorities emerged. The top three were:

1. A local authority to coordinate and fund job creation and community support
2. Fund flagship projects that create jobs
3. Expand TAFE and vocational education.

These top three priorities reflect overriding community needs and concerns: locally-driven coordination and community support, job-creation, education and skill-building. The remaining seven priorities focus on practical skills and initiatives to sustain local economies, business and people's adaptability:

4. Market the Hunter to attract investment
5. Start community-owned energy networks
6. Build pilot projects for new industries
7. Create rules for mining and power companies to protect workers
8. Free training for mine and power station workers moving into new roles
9. A long term fund for land and water management after mine rehabilitation
10. Grants and training for local businesses to diversify.

The process found people understand the challenges facing the Hunter region and want planning and action to address these challenges that are equitable and community-driven. They are ready and willing to take part in the work of the Hunter Expert Panel and Royalties for Rejuvenation program.

The feedback is abundantly clear. This process and report demonstrate people's desire to have a seat at the table to collaboratively plan for the region's future.



“

We have great engineering, ports, power, and logistics all available in the Hunter. It's just about how to transition the workforce across. There are big opportunities and I'm impressed with the momentum.

Muswellbrook workshop participant

# Introduction

**In late 2021, Hunter Renewal and the Hunter Jobs Alliance convened five workshops and an online survey to gather input and ideas from the community about the priorities for the soon to be established Hunter Expert Panel and Royalties for Rejuvenation Fund.**

Participants joined from Wonnarua, Awabakal, Darkinjung and Worimi country, in Cessnock, Singleton, Muswellbrook, Maitland, and Lake Macquarie LGAs, and the survey allowed input from Hunter residents more broadly. In all 314 people from across the region have contributed to this report.

## **Background to the workshops and survey**

Hunter Renewal is a community outreach project established in 2017 to speak with people in the region about economic diversification and their priorities for the future. The Hunter Jobs Alliance is a coalition of thirteen local and statewide unions and environmental advocacy groups in the Hunter working together for new sustainable economic opportunity for workers and the broader community.

The Voices of the Hunter Valley workshops were conceived to give ordinary Hunter people a chance to have a say. The purpose of the workshops was two-fold:

- Gather community priorities and perspectives to inform decisions about Royalties for Rejuvenation Fund and the Hunter Expert Panel;
- Ensure the community has access to information and opportunities to be involved in transition planning.

Due to COVID the workshops were conducted online, targeted to communities in the region most impacted by changes to traditional industries: Cessnock, Singleton, Muswellbrook, Maitland, and Lake Macquarie. Invitations were sent to supporters of Hunter Renewal, to members of Hunter Jobs Alliance affiliates, and to community organisations and small businesses in the local areas of focus. Registration was open to all, and the events were also promoted on Hunter Renewal and Hunter Jobs Alliance websites and Facebook. The online survey mirrored the workshop activities and was promoted more widely in the Hunter region.

## **Participants**

Of the 314 unique participants 111 took part in one of the five workshop and 203 completed the survey. Participants included people involved in local organisations like Rotary, PCYC and the CWA, church and charity groups, business owners and business and investment advocates, people who work in social services, housing services, drug rehabilitation or caring support, workers from power stations and mines, health and education, manufacturing and mining services, young people, retirees, professionals, government representatives and rural landholders.

## **Process**

To design the workshops and survey, facilitators considered 30 reports and plans addressing the Hunter's future planning and diversification. From these reports, 155 separate ideas were drawn, and then distilled into 22 key proposals in four broad categories:

- Planning and coordination;
- Growing and diversifying the economy;
- Supporting the community through change;
- Supporting workers through change.

Workshop and survey participants chose their top priorities for transition initiatives from this set of proposals. A table showing the full list is on page 27. Background information was provided to help respondents make informed decisions. They were also given the opportunity to add their own ideas.

## WHAT WE HEARD

**“Keeping the community informed regularly as to what is happening is key. If the community is not behind it and they haven’t heard about it then it will fail.”**

Singleton workshop participant

**“I was born and bred in Singleton and worked in the power station for the last 40 years. I have kids and grandkids in the Hunter area. The coal is going to stop flowing, thermal coal power is going to stop being generated so I want to set the future up for my future generations. There’s a lot going on in the power industry at the moment, and people are pretty scared about what the future holds for them.”**

Cessnock workshop participant

**“It is important to have this talk about transition as one about opportunity rather than what is stopping us, because people are worried about losing their jobs and their whole culture. For so many in the Valley it is about what they do, what their grandparents did, and it’s about putting food on the table. It’s culture. We need to change with respect and dignity.”**

Maitland workshop participant

## Thank you!

There are a great number of people who have contributed to this report, most importantly the participants of the workshops and those who took the time to fill out the survey. Thank you for your time, candour and dedication. We would like to especially thank Kimberley Crofts, PhD candidate at UTS, for help in designing and running the process; our volunteer facilitators from each of the workshops: Jai Allison, Janet Murray, Allan Evans, Pete Coughlan, Jo Lynch, Courtney Eckert, Jo McNeil, Callan Lawrence and Steve O’Brien; and our volunteer callers, data analysts, scribes and writers Rod Anderson, Martin Scurrah, Joy Nason, and Lucas Kennedy.

## Next steps

Hunter Renewal and the Hunter Jobs Alliance will provide this report to the NSW Government to provide insight into the community’s views about the priorities of the Hunter Expert Panel and Royalties for Rejuvenation Fund. We intend to engage proactively in these processes, and continue engaging with our members and supporters and the broader community to ensure ordinary people have a seat at the table.

# Top concerns

We asked people to tell us what concerned them about the region's future. Here's what they told us\*.

Concern	Percentage
Economic futures beyond mining	11.4%
Welfare of future generations	6.3%
Job security	15.3%
Urgency of transition planning	13.5%

**Economic futures  
beyond mining  
11.4%**

**Welfare  
of future  
generations  
6.3%**

**Job security  
15.3%**

**Urgency of  
transition planning  
13.5%**

\*Percentages indicate weighting within the top fourteen concerns.

**Protection of  
the environment  
& climate change  
23.7%**

**Food &  
water security  
6.6%**

**Energy security  
3.6%**

**Housing  
affordability  
4.8%**

**Lack of access  
to training/  
education  
3.9%**

**Lack of access  
to transport and  
connectivity  
2.7%**

2.1%

Accessibility  
of health and  
community  
services

No  
confidence  
in regional  
leadership for  
transition

Mental health  
issues related  
to job loss

Lack of  
community  
involvement  
in transition  
planning



A local authority  
is urgent in my mind...  
Coordination is key,  
there is an appetite and  
support for it from a  
majority of stakeholders.

Cessnock workshop participant

# Top priorities

The following emerged as the top priorities among the 314 people who took part in the workshops and the survey.

17%

A local authority to coordinate and fund job creation and community support

14.9%

Fund flagship projects that create jobs in new industries

13.9%

Expand TAFE and vocational education

8.4%

Market the Hunter to attract investment

8.4%

Start community-owned energy networks

8.1%

Build pilot projects for new industries

7.9%

Create rules for mining and power companies to protect workers

7.5%

Free training courses for mine and power station workers moving into new roles

7.2%

A long term fund for land and water management after mine rehabilitation

6.7%

Grants and training for local businesses to diversify

## CATEGORIES

-  PLANNING & COORDINATION
-  BUSINESS & INDUSTRY
-  SUPPORTING WORKERS
-  SUPPORTING COMMUNITY

Percentages indicate weighting within the top ten, not the 22 concepts used across the workshop and survey. Please see table on page 27 for a list of all 22 concepts.

# A local authority to coordinate and fund job creation and community support

**There is wide support for a Hunter Valley Authority to set out a clear roadmap for how we will deal with change.**

## **A local coordinating authority is essential**

Along with some concern about losing out in transition, there is excitement around the opportunities that change brings. If the process is thoughtfully planned, it will allow the community to feel secure, involved and optimistic.

Participants recognised that someone needs to coordinate the many moving parts of our economy, to ensure the Hunter can take best advantage of opportunities that arise. For example when new industries open their gates, we need to ensure local people are ready to step into these jobs. A transition authority could coordinate with training organisations to develop and deliver relevant training programs to prepare the local workforce in the right timeframe.

Input from all sectors of local communities will be essential to guide the transition process. This will generate a wide range of ideas and facilitate excitement about the region's future. The survey and workshops themselves have demonstrated that people want to be involved.

In June 2021, the Hunter Jobs Alliance proposed a model for a statutory Hunter Valley Authority. The authority should be tasked with delivering a defined set of functions in collaboration with other agencies, programs and stakeholders. More information can be found on the Hunter Jobs Alliance website.

## **Scepticism about effective, efficient, and equitable transition**

People made it clear that a transition done right means nobody is left behind. Optimistic participants noted that these changes are an opportunity to create an inclusive and sustainable regional economy and society.

There is doubt that \$25 million per year is sufficient to undertake the task at hand. In the Maitland workshop one person said “\$25 million is not a lot of money. How are they going to fund all the things that need

*to be done in the Hunter community?”. Numerous participants suggested the initial funds be used to develop a plan and get things going, but a substantial commitment of more funding is needed.*

While government leadership is essential, there is wariness of corruption, bureaucracy and waste. Transparency, genuine and diverse community involvement, and accountability mechanisms will offset these concerns.

## **Coordination among stakeholders is essential**

Coordination by a transition authority should aim to ensure diverse interests and aspirations are included, not just local elites. As a workshop participant from Muswellbrook said: “You need local participation, and a government body to coordinate. Everything then can flow from this”.

A clear process for community engagement with the authority should be established. Participants felt that transition initiatives depend on community involvement. The region's interdependencies can only be properly understood with representatives from a diverse range of groups.

For example we found some Hunter residents are impatient and feel we may be missing opportunities to diversify the region's economy and move towards renewable energy. One workshop participant said: “We should be starting on planning for decarbonising industry. We have the overlay of climate change and we have to do something about it everywhere, we have to start thinking about it now”.

Others, have concerns about what switching to renewables will mean for heavy industry: “I am an electrician at Tomago Aluminium and wonder if there is going to be enough base load power to keep the smelter running when the coal powered power stations shutdown.”

A local authority needs to be immersed in the community to understand and properly balance different perspectives. Participants could see that the process is complex, and an authority needs to be grounded in the needs and concerns of community to best match real opportunities with the resources and reality on the ground.

### WHAT WE HEARD

***“If we don’t have adequate planning as we transition out of fossil fuels there is a very real prospect that some people will be left high and dry, not just people who work in the fossil fuel industry, it’ll be entire communities.”***

Cessnock workshop participant

***“The most important thing is involving the local community in designing the transition. Unless you take the locals with you on the journey, so that they own the changes, it will not be successful.”***

Lake Macquarie workshop participant

***“Collaboration is important...people who work in industries that pollute need to know that we care about them. We need to include them.”***

Singleton workshop participant

***“We have to step out of our way to make sure that First Nations people are more involved in [transition planning].”***

Singleton workshop participant



### IN THE SPOTLIGHT

#### **The Latrobe Valley Authority**

In 2017, the Hazelwood power station in the Latrobe Valley Victoria closed, and hundreds of workers lost their jobs. The Latrobe Valley Authority (LVA) was established with an immediate focus on support for workers, incentives for businesses to employ more people, and investments in community facilities and events.

As the LVA was established in reaction to the closure of Hazelwood, the opportunity to plan ahead of time was missed. The LVA has since been working to increase workers and employers’ skill base in growth sectors. Along with initiatives to build business capability, maximise local procurement, competitive advantage, and improve the sustainability of community organisations, the LVA is focused on leveraging infrastructure investment to create employment in the region’s growth industries of the future.

# Fund flagship projects that create jobs

**People strongly support public funding of flagship projects, to provide jobs for local people and demonstrate opportunities in new industries.**

## **Job creation with tangible projects needs to be a priority**

With the scheduled closure of four power stations over the next 14 years and a projected contraction of jobs in mining over time, workshop participants were eager to talk about how people in the Hunter will make a living in the future.

There is a fear that leaving the future to the market will create uncertainty and instability in the economy and people's lives. In Lake Macquarie, we heard: *"The decline in the thermal coal sector could happen much more quickly than imagined due to investors and financiers seeking green investments. This risks seeing a gap between the loss of resources-related jobs and those from emergent industries"*

Putting public funds towards new industries was a very popular idea. People saw a need to be proactive, to fund projects that will stabilise employment, the economy and demonstrate the region is open for business.

## **Excited for the possibilities, but need to find the best fit**

People are excited to shape the Hunter economy in a new direction. Widespread support for renewable energy comes with the hope it can bring local manufacturing jobs in industries such as electric vehicles, batteries and wind turbines. Other growth opportunities consistently identified included adventure tourism, wine and agriculture, retirement communities and environmental conservation and mine rehabilitation.

Whatever the possible projects that may exist, people saw the importance of choosing carefully. Projects to fund would make best use of the existing workforce skills. Hence, a skills audit and workforce development planning is seen as necessary to effectively assess potential projects.

## **A strong preference for local, sustainable businesses**

People preferred that funding for business or industry go to home-grown, local ventures, rather than outside companies. This is because locally-owned businesses are seen to be more attuned to the needs of the community. With all the opportunities in clean technology, people also had a strong preference that the industry be focused on sustainability.

### **WHAT WE HEARD**

***"A flagship project is very important to fund because it lifts morale, but it has to be carefully chosen: a project that other industries can cluster around, one that uses and further develops the skills of the existing workforce, and one that engages with existing local businesses, small and large."***

Maitland workshop participant

***"We could do much better than having companies from overseas reaping the benefits. Instead we could have locally-owned and innovative industries that could really provide a renaissance [for the Hunter]."***

Cessnock workshop participant

***"There could be jobs in manufacturing related to fly ash for people who work in or live near power stations, and ideally people would be re-trained if they wanted to accept a job in the coal ash manufacturing reuse plant — they wouldn't have to move away."***

Cessnock workshop participant



ABOVE: Drayton coal mine, coal ash dams, and Bayswater power station in the background.

## IN THE SPOTLIGHT

### **Manufacturing structural lightweight aggregate from legacy coal ash**

Reusing the coal ash held in dumps at the four Hunter coal-fired power stations opens new possibilities. The ash dredged out of these dams can be manufactured into structural lightweight aggregate (man-made sand and gravel) for use in the production of lightweight structural-grade concrete. The mechanical and chemical processes of 'cleaning' the ash allows for the cost-effective manufacturing of a range of other specialised products for road construction.

This product mix allows the manufacturers to empty the Hunter ash dams over two decades, enough time to develop the manufacturing processes further. Subsequently, other waste products like glass, tyres or plastics can take the place of coal ash.

Economic modelling based on an existing business case has shown that manufacturing structural lightweight aggregate at the five operating ash dams in NSW (four of which are in the Hunter) can create some 3,000 permanent full-time jobs. The manufacturing processes involve technologies and equipment that are common in mining, which means that the workforce to operate these new factories is readily available in the Hunter, including the many small and large businesses in the supply chain and the maintenance structure for the equipment.

In addition, structural lightweight aggregate can give the cluster of factories that produce precast concrete products in the Lower Hunter a competitive edge, because they can offer lightweight products of equal strength.

# Expand TAFE and vocational education

To prepare us for a new economic future, participants strongly supported expanding TAFE and vocational education. As a beloved public institution, TAFE is the favoured body for delivery. Planning is necessary to ensure people have access to the courses they'll need as the economy changes.

## Increase funding and courses

At every workshop around the region, TAFE was seen as the key institution for preparing workers and the community as a whole for the challenges ahead. There is great concern about TAFE budget cuts and the closing of Scone TAFE, and what this means for our ability to adapt to a new economic environment. People felt that resources should be restored to TAFE to expand opportunities more generally and to develop trained persons for a more diversified economy. In addition to preparing workers for roles in new industries, a strong TAFE could help address skills and workforce shortages in certain sectors such as the care economy.

## Public education to address disadvantage

One reason TAFE was so strongly supported is that it is seen as a key way to address disadvantage in the region. There is a sentiment that moving towards private training institutions results in a greater user-pays culture in education and unequal opportunity.

## Planning so that the courses meet our changing needs

There was an acknowledgement that if we want local people employed in new industries, training will need to begin before new industries and economic activities are in place. This requires advanced planning and coordination between high schools, TAFE, regional authorities, business and others. TAFE and training institutions need to know in advance what the likely new jobs will be so that it can design courses, recruit teachers, and prepare resources to develop the skills that will contribute to new opportunities.

## WHAT WE HEARD

*“Training is something that is fundamental to this process. Training and TAFE is the backbone to help people get into a new industry. The whole training, and retraining aspect is essential to the success of a transition. It is problematic when funding keeps getting cut. They are doing the best they can with a shrinking budget.”*

Lake Macquarie workshop participant

*“We have a slight problem in expanding TAFE in the next three years if we don't know where employment is heading.”*

Singleton workshop participant

*“With Scone TAFE shut down, our young people have to travel to Muswellbrook to do courses and, with few public transport options, this is an equity issue... If you don't have a car you can't get to TAFE. People with disabilities are even more disadvantaged.”*

Singleton workshop participant

*“If we don't provide this type of facility for people to become educated in new skills it means employers may bring new people into the area and our existing workforce will be on the scrap heap because we haven't provided for their future.”*

Lake Macquarie workshop participant

## IN THE SPOTLIGHT

### The challenge of finding skilled staff

A key finding from the 2020 *Clean Energy at Work* report from the Clean Energy Council was that renewable energy developers and installers are facing difficulties in recruiting skilled and experienced staff.

*“There is a high demand for electrical and grid engineers, and construction managers across wind and large solar projects, with developers finding recruitment for these roles challenging. In the last 12 months, two thirds of renewable energy companies that tried to recruit a construction manager had medium to high difficulty (it took more than five weeks to find a suitable candidate).*

*In the wind sector, there are certain unique occupations that are only occasionally needed but are nevertheless critical to the construction phase. Examples are crane drivers and specialised truck drivers for wind turbines. It can take two years to train in wind farm transportation and the driver may then seek ongoing work in another industry. As operation and maintenance of wind farms becomes an increasingly important role there will also be heightened demand for blade technicians, yet these are already hard to source.*

*The study also confirmed anecdotal evidence that most small-scale solar businesses face difficulties in recruiting accredited solar designers, electricians, electrical trade assistants and roofers, especially in regional areas, yet these are in high demand. Under some scenarios this demand will see a steady increase” (Clean Energy Council, 2020).*



## PRIORITY #4

# Market the Hunter to attract investment

People supported the idea of a marketing program for potential investors in the region. It could provide information on available incentives, land availability, demonstration projects, workforce skills and advice on navigating the planning system.

### **Attracting investment to the Hunter**

People agreed that if we are to build a new economic future, we will need to attract new investment in the Hunter. To take best advantage of interest in the region, people saw the value in a one-stop-shop, where potential investors can be welcomed, get the full picture on the many advantages of establishing themselves in the Hunter, have their questions answered, and obtain practical advice on liaising with local and state government processes.

### **Local collaboration is crucial**

Participants were clear on the need to not waste public money on merely advertising the region. Further, marketing the Hunter should not mean offering the region, its people and resources for exploitation by outsiders but rather highlighting the region's development potential in cooperation with locals.

## WHAT WE HEARD

***“If this is about marketing the resources we have here, and what the Hunter has above other regions, then it’s good. If it’s just ‘come to the Hunter’ then not so good.”***

Muswellbrook workshop participant

***“We need funding to encourage and entice new enterprises to come to town.”***

Muswellbrook workshop participant

***“This would shift emphasis from what Singleton has been to what it could be.”***

Singleton workshop participant

## PRIORITY #5

# Start community-owned energy networks

People supported the idea of community-owned energy initiatives as a way to lessen the risks of increasing electricity prices and to keep the economic benefits of energy production in local communities.

### **Enthusiasm for renewable energy**

There is enthusiasm in the community for producing renewable energy, demonstrated by the popularity of solar panels. However, the ability of some people to participate in this energy revolution is limited by inequality: not everyone owns a roof that they can put a solar panel on. Grants and training to establish community-owned energy networks allows everyone in the community to support renewable energy and reap its cost savings.

### **Community cohesion and morale building**

People noted that the benefits of community-owned energy networks reach beyond the benefits to the environment or the hip pocket. In taking initiative and control over their own energy needs and production, people feel empowered. People in the workshops noted that process of working together to establish a project would build community cohesion and morale. For those reasons, it can help make communities more resilient in the face of changing and uncertain economic times.

## WHAT WE HEARD

***“Community-owned energy networks are a really exciting initiative and I would love to see something like this in Maitland and put my spare cash to it, and to get involved.”***

Maitland workshop participant

***“The community can get together and decide where it goes, and get the benefit from it, not like an outside company coming in.”***

Singleton workshop participant

***“Community-owned energy networks allow people to work together in community groups to solve their own green energy solutions.”***

Lake Macquarie workshop participant



ABOVE: Solar farm and sheep (Gabelglesia, Creative Commons).

## IN THE SPOTLIGHT

### **Goulburn Community Energy Co-operative**

In Goulburn, locals have established the Goulburn Community Energy Co-operative. The project was kickstarted with \$2 million from local investors, matched by a grant from the NSW State Government. Capital raising continues and they are opening up investing to outside parties. The co-op is building a solar farm on 2.2 hectares of industrial land.

The solar farm will consist of 4,000 panels generating 1.8Mw which is sufficient to generate power to around 450 homes,

and backed up by a 400 kW battery to store energy and sell when the price is right.

Electricity from the solar farm will be sold back to the grid, with profits split three ways: into dividends, a sinking fund for panel repairs and maintenance, and a fund to pay for electricity bills for Goulburn's disadvantaged people. Construction of the solar farm by Komo Energy commenced in early 2021 and its anticipated completion date will be late 2021.

## PRIORITY #6

# Build pilot projects for new industries

Provide the means for local businesses to partner with innovation experts so that they can test their ideas.

### **Supporting new industries is essential to diversify the Hunter economy**

People are nervous about where new jobs are going to come from in the Hunter, and see the benefit of government support to test new industries. If successful, these industries could be a part of a new diversified economy, and provide much needed employment to local people.

### **Support for a system of innovation and research across the Hunter**

There was strong support for ensuring that locals have access to the best research institutions and innovation experts such as CSIRO and the University of Newcastle should they wish to start a pilot project. People also stressed the importance of supporting linkages between different research institutions, businesses, and local people with ideas.

### **WHAT WE HEARD**

***“You have to be able to test the waters to see what works. This is one way to incentivise new industries. What are the opportunities for local businesses that may not have been able to start something yet as they don’t have the funding?”***

Singleton workshop participant

***“My son has a start-up business which will thrive if this region starts investing in the industries of the future. I look forward to my grandchildren having exciting jobs in the new economy.”***

Newcastle resident (survey)

***“The industry and business community should work closely with university and CSIRO researchers to get local breakthroughs commercialised and manufactured in the Hunter. An industry hub where related businesses can collaborate and share resources could help.”*** Cessnock resident (survey)

## PRIORITY #7

# Create rules for mining and power companies to protect workers

People agreed on the necessity to set clear expectations of companies undertaking large scale closures in the Hunter. These would include things like minimum notice, comprehensive redundancy packages, counselling, and a duty to assist with retraining.

### **Can’t let companies ‘cut and run’**

People in the Hunter have a high awareness that large-scale closures can be disastrous for workers and communities, especially if poorly-planned. Workers deserve their entitlements and decent notice so they can make the right choices in their interests. Strict and clear rules to which companies must adhere would reduce anxiety for affected workers. Additionally when these expectations are set, companies can also plan for them.

### **Funding redundancies is a mining company responsibility**

While people were enthusiastic about the availability of coal royalty money to spend on the region they were adamant that it should not be used to fund basic entitlements. Further, it was felt that companies undergoing closures should also fund retraining, and other worker support such as financial and career advice and counselling.

### **Distrust of government**

While agreeing that it was a good idea in theory to set clear expectations of big companies, some participants were deeply sceptical that government would enforce any rules on private business, especially such a big and powerful business as mining.

### **WHAT WE HEARD**

***“As long as business knows what the tariffs are they can plan for it, trouble is in Australia companies get away with murder. In other countries it’s not a problem - these are the rules, this is what you have to do. They factor it into their plans, end of story. Here the community has to demand it forcefully.”***

Lake Macquarie workshop participant

***“The companies aren’t offering redundancies but just telling workers to take a job interstate. I don’t think many will move, they’ve already got their lives set up.”***

Muswellbrook workshop participant

***“As a community we can demand this. And they should provide new training for people before their jobs end.”***

Lake Macquarie workshop participant

## PRIORITY #8

# Free training for mine and power station workers moving into new roles

To support mine and power station workers through change, participants agreed they should be provided with free courses to help bridge their skills to new roles.

### **Retraining and re-skilling the Hunter workforce is crucial**

Anticipated job losses in mining and energy means some workers will have to find a new way to make a living. It is important these workers are supported through this change. Some, such as electricians, will be able to walk out of jobs in the mines to jobs in other industries. There are others who need substantial retraining to be able to adapt. Courses offered and available to workers needing new jobs should be directly relevant to future employment.

### **Companies have a responsibility to the region and their employees**

Companies have made a lot of money from the Hunter and its people: if closures are planned, funding for retraining should be part of redundancy packages. To assist worker transition, retraining can start before workers are made redundant. Companies should be flexible in allowing workers to attend courses while still employed.

### **Relevant and high quality training/courses need to be available**

Planning and coordination is required to ensure that the right courses are available to the right people at the right time. Workers need to trust that if they take the time to retrain, they will have all the skills required to qualify for new roles in emerging industries.

## WHAT WE HEARD

***“There is a lack of understanding of how transferable the skills of mining are. I work in the mines and I can only move to central Queensland. If everyone moves then this whole transition is null and void. There will be no one here. We need support for identifying transferable skills.”***

Singleton workshop participant

***“I’m a miner. Change is coming. Mining companies and unions need to do more to re-educate and reskill. Employees have the time and money if given appropriate avenues.”***

Lake Macquarie resident (survey)



## IN THE SPOTLIGHT

### **HCB Solar**

In 1948, Michael Haggerston’s grandfather started an electrical business that is still trading in Boolaroo. Michael has taken up the mantle along with his son, Logan, in creating HCB Solar. Michael had this to say about the opportunities for the solar industry in the Hunter region:

***“We’ve seen the solar industry grow and grow since 2008. Being at the forefront of the solar sector in the Hunter and working nationally we recognise the opportunities that exist in the Hunter to embrace renewables.”***

***HCB Solar, under the company name WS Farm, is developing a solar education facility in the Williamtown area close to Newcastle Airport. We see this as a positive start to educate companies that are in the renewable sector to learn in a controlled environment on how to install products before they enter the field. We have had a positive approach from six international companies.***

***We are committed to seeing this succeed and with government assistance this could grow to be the hub of solar training on the east coast. HCB Solar is well aware of the public’s positive attitude towards renewables and believes up and coming generations will be even stronger.***

***The Hunter is well positioned to take advantage of the rapid growth of solar and batteries within our region. The future is very positive and we are looking forward to bringing new companies to the Hunter Valley.”***



ABOVE: Wambo 3 coal mine near Singleton.

## PRIORITY #9

# A long term fund for land and water management after mine rehabilitation

Participants saw restoring and protecting environmental resources as highly important and essential to maximise resilience and productivity. People supported putting money aside for environmental monitoring and management, including towards new uses for our natural resources.

### Rehabilitation is the mining companies' responsibility

People felt strongly that mine site rehabilitation should not come from public funds. Damaged areas should be restored to the level where it's possible to use the land for new cultural and/or economic activities.

### Indigenous-led initiatives to look after natural resources

Managing land and water long term means employing people to look after those natural resources. There was a recognition that First Nations' knowledge would assist greatly with safeguarding the local environment, and support for relevant Indigenous-led initiatives that would look after resources while providing employment for local people.

### Many potential uses of former mining lands

Participants wanted to see the imaginative transformation of old mine sites for uses that create and add value while conserving the environment. They suggested sites be used for wildlife restoration, wetlands, botanical gardens, recreation and tourism, or agriculture.

### WHAT WE HEARD

***"It is important that we support Aboriginal-led business and make sure they are included in this sort of planning, we are on their country and so that should underpin everything that we do."***

Cessnock workshop participant

***"The only issue with funding land and water rehabilitation is that I don't want there to be a perception by the coal mines that rehabilitating the land is not their job. It is a great idea that just needs to be implemented carefully."*** Newcastle resident (survey)

***"We should aim for clever rehabilitation of mining damage and pollution; so many jobs can be based around protecting and caring for the place we live in."*** Lake Macquarie resident (survey)

## PRIORITY #10

# Grants and training for local businesses to diversify

The future of many small and medium enterprises in the Hunter is tied up with the future of coal mining. To protect existing jobs and to create new ones, participants saw the need for local businesses to develop a diversified business model, supported by grants and training.

### Education and training for businesses to help with diversification

Existing businesses need to be resilient if they are to survive an uncertain economic future. Many do not have the knowledge of how to do this. Education and training for these businesses is an important part of the picture, to ensure they succeed and are able to continue to employ Hunter people.

### Create the conditions for small businesses to grow

Small business is seen as an important part of the employment puzzle in the Hunter, and there is support for grants to help existing small businesses and startups. There was support for a boost for Aboriginal-led business, and developing entrepreneurial abilities in local people.

## WHAT WE HEARD

***“You are better to spend money on the businesses already here rather than trying to get new businesses to come here.”***

Muswellbrook workshop participant

***“It’s not going to be one great big thing that comes to our rescue. With the right amount of government support we can stimulate job creation through small businesses.”***

Muswellbrook workshop participant

***“I was born in Muswellbrook. Before the coal mines there were little industries everywhere, maybe we have to get back to that.”***

Muswellbrook workshop participant

***“80% of business headquarters are located where the founders live ... it’s about creating the environment that makes people want to create a business, if they live in Cessnock they will create that business in Cessnock.”***

Cessnock workshop participant



## IN THE SPOTLIGHT

### Amcontrol

*“Amcontrol is Australia’s largest privately-owned electrical engineering company leading advanced global manufacturing of award-winning innovations, products, solutions and services to the resources, infrastructure and energy sectors. Amcontrol works with its customers, employees and community in the evolving industrial landscape to make a meaningful and sustainable improvement to people’s lives around the world.*

*As the world adjusts to the global pandemic with a renewed focus on sovereign manufacturing and a carbon reduced future, our new strategic plan aims to strengthen our position as one of Australia’s leading advanced manufacturers of renewable energy solutions. Amcontrol’s modelling of the power generation sector several years ago identified the need to diversify our revenue sources. Interestingly our move to expand from a substantially coal-based revenue base has opened opportunities in areas we had not previously considered. As a result, thermal coal will be less than 20% of our revenue.*

*Amcontrol is investing heavily in research and development in the renewable energy space with over 25 dedicated R&D engineers employed through a collaborative partnership with The University of Newcastle. There is an immense benefit of industry and government bodies uniting, bringing great minds, capabilities and ingenuity together for the benefit and sustainability of our community and economy, and all done right here in Australia. The immense skill and expertise that we have in the Hunter Region form a platform for a sustainable large employment sector that can be a long term powerhouse for New South Wales.”*

**Rod Henderson, Managing Director & CEO, Amcontrol**



“

If we get this right, the entire region could benefit on so many levels and lead the way as a sustainable and prosperous region, which could be an example for other regions worldwide.

Newcastle survey participant





# Other issues people raised

We collated over 1,200 comments from Hunter region people in the workshops and survey about what is important to them. These comments didn't solely focus on the nominated priorities. Below is a snapshot of other regional priorities.

## Environment & Climate

*"We want to see a thriving future for our future generations. We are all concerned about what we will be leaving for them. We talk about this a lot [among friends]."* Cessnock workshop participant

**Change is needed to avoid the worst of climate change.** This includes rising temperatures, biodiversity loss, water restrictions. Any transition process will need to take into account the likely impacts of climate change and include measures to strengthen resilience.

**Air quality and pollution from mining and its impact on the health of humans and livestock.** There is an expectation that as the mines and power plants close air quality will improve and there will be less danger from pollution of Lake Macquarie.

**Concern for habitat destruction due to housing development.** Some people are excited at the prospect of a growing Hunter. Others feel there is a need to regulate housing developments to avoid suburban sprawl, habitat destruction and loss, by promoting affordable and sustainable, high-density housing.

## Health, Care & Community Services

**People are concerned about inadequate health services.** Given the uncertainties associated with transition and change, plus the disruption from lost jobs, changes in demand for businesses and the impacts of climate change will all generate stress and anxiety and generate mental health issues.

**Energy justice.** Allowing wide access for people to be able to take advantage of new renewable energy alternatives like solar power will mean green alternatives are not confined to the wealthy.

**Concern that job losses related to an unplanned transition will put pressure on under-funded community groups.** Unplanned transition will make problems like homelessness worse, putting more pressure on community organisations and non-profits. These organisations need increased funding to support a fair transition and to ensure that nobody is left behind.

## Housing Affordability

**Access to affordable housing is an issue,** especially in areas where high wages have driven up rents. Building more affordable and sustainable housing is essential, but must not create further problems through poor insulation and inability to access renewable energy.

**Homelessness.** There is already widespread homelessness in some communities in the region. This has been exacerbated by treechangers and people with good mining jobs pushing up housing prices. This creates a steep gap between the haves and have-nots in the community. Unless something is done in advance to address this situation, the closure of coal mines and power plants will increase the homelessness problem.

## Transport and Connectivity

**Improving infrastructure to attract and grow new industries.** While the existing rail, road and port infrastructure provide a good basis for developing the region, especially for manufacturing, it needs to be upgraded. This should be funded out of existing or expanded government budgets, not from the royalties fund.

**Transport infrastructure to increase equity and access to employment and training opportunities.** An upgraded public transport system to connect the towns of the Hunter is needed, in combination with facilities for active transport (e.g. cycling and walking) to access jobs and services.

## Arts & Culture

**Engage artists to tell the story of change.** There is interest in supporting artistic activities and arts projects that tell the story of the Hunter's history and future, and portray who we are and what we represent. This is a way to support the arts industry that has suffered greatly under COVID.

## IDEAS PRESENTED IN THE WORKSHOPS & SURVEY



### Energy-Intensive Industries

**A range of views exist on the energy transition path for existing heavy industry.** Whilst some feel excited about sectors like aluminium smelting switching to renewable energy, workers in the industry are concerned about whether this is even practicable or might result in job losses. In any case participants recognised it would require large investment, and therefore had reservations about such funding coming from the \$25 million Royalties for Rejuvenation fund.

**Support for development of new, decarbonised industries.** New jobs should be “clean and green”, providing healthy and sustainable livelihoods across the region.

### Other Industries

**There’s general support for the development of manufacturing** businesses in the Hunter that can be sustainable and competitive.

**Tourism should be supported** because the region has a rich history ideal for Indigenous and heritage tourism, and beautiful natural resources ideal for ecotourism and the wine industry. This requires investment, but also training and advice about how to develop sustainable tourism initiatives.

**Agriculture.** There is a strong interest in diversifying agricultural and livestock activities through innovative and competitive activities that preserve biodiversity, sustainability and resilience, and contribute to regional food security.

# Local priorities

## Cessnock

In Cessnock, there is stress and concern about social, environmental and economic pressures already present in the community, and about vulnerable or disadvantaged groups. Participants shared a sense of the inevitability of change and anxiety about the future.

***“There’s so much fear about losing jobs.”***

***“My main concern is that people slip through the cracks. Even though the Hunter Valley is the most beautiful place to live in the world, we have people who are hungry, homeless and without a lot of hope.”***

***“Getting counselling, advice, and support makes a huge difference because people can start to re-envision their lives.”***

***“The Hunter is more than just coal mining—tourism is a major industry—but there is a lot of infrastructure that is still needed to support that, for example transport.”***

## Singleton

In Singleton, there is profound concern about how the community and economy will manage coming change. Yet, there is also enthusiasm to get going, and a strong desire for enabling the community to collaborate with government at the state and local level on this work. There was a strong focus on skills. Both the need for free and expanded vocational education, and for research into and recognition of the skills base already present in the mining industry. The mining workforce needs targeted programs centred on transferable skills and the practicalities of job-shift.

***“There needs to be better coordination, but it should come from the community, through council, and then up to government for support.”***

***“We want to drag the wages and conditions up to what is paid in the mining industry. People say that it is great that we are looking after people in the care sector, but we won’t attract people from mining into the care sector without investment.”***

***“If we’re making grants to community organisations, vulnerable groups should be prioritised and Aboriginal groups especially.”***

## Muswellbrook

In Muswellbrook there was concern about the real challenge of wages and how people working in mining would be assisted to maintain their levels of income. People are confused about transition—wary of the terminology—and uncertain about what jobs may be coming and how much they will pay. Reskilling and vocational education were a top priority and participants reflected on the importance of using the skills already strongly present in the region.

Supporting existing businesses should take priority over attracting new business from outside, and small local business over large multinationals. Grants or incentives for business attraction won’t work unless there is the physical and social infrastructure present to support new opportunities, particularly internet, transport, education and health.

***“You want to give what is already in your community a leg-up first and then see what else is out there.”***

***“To create compelling and enticing activities for developing new land uses or enterprise to town you have to have good infrastructure — internet, transport, training, health.”***

***“The mining workforce will need to have wages that are equal to what they have now or they will leave [the region].”***

***“[We need] some type of priority for those who are looking for jobs, prioritising people who have lost jobs in the local mines to get the jobs that are around.”***

## Maitland

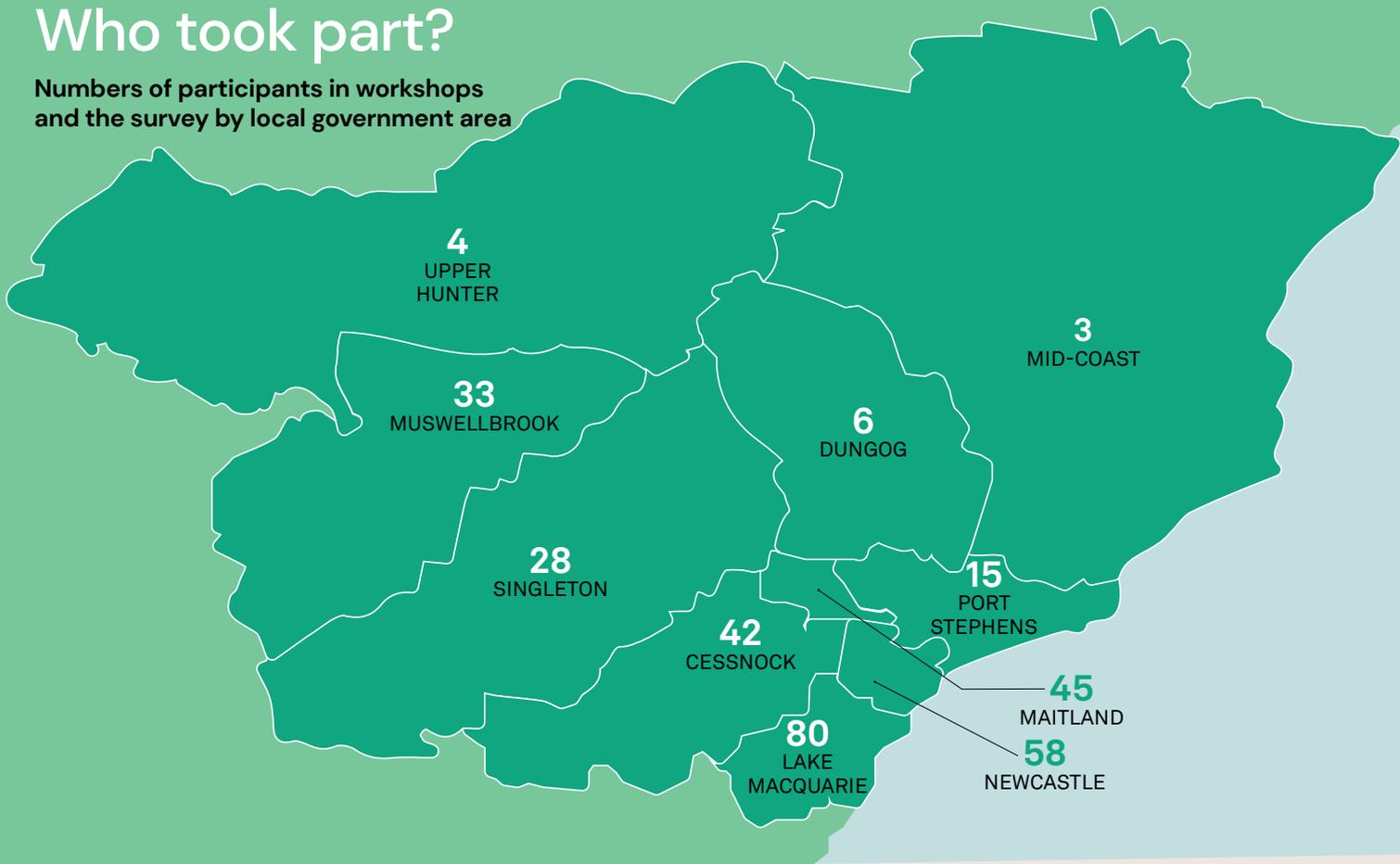
In Maitland, problems with housing affordability and homelessness were raised again, as was the underfunding of TAFE and the need for public transport. Regarding the region’s future, there was a shared sense that it was possible to manage change positively, but scepticism that this would happen.

Maitland people felt workers facing redundancy need support not just with training and job opportunities, but socially, financially and personally. The first thing people working in mining needed to see was job creation, and there was no reason why diversification should be seen as undermining the mining industry.

***“I am worried about the political aspects of transition and how we can make it less about conflict and more about ideas.”***

# Who took part?

Numbers of participants in workshops and the survey by local government area



***“My recall from BHP closure was that those who took up counselling benefited from it. This assists people through the path of moving from one employer to another, or to take up the opportunity to retire.”***

***“First there needs to be jobs. There cannot be advice if there are no jobs to go to. Governments are very happy to create another advisory industry and then there is nothing left for the workers. It needs to come later in the process.”***

***“I get to see some of the adults who have lost their jobs and we often can’t meet their health needs because we don’t have the staff.”***

***“Yes, the mines are wrecking our land but I get to benefit from the resources that they provide us every day.”***

## Lake Macquarie

In Lake Macquarie, participants expressed a sense that the area was lagging, with housing, vocational education and the arts already under-funded. There was sentiment, too, that the region is behind in transition planning and preparation, and there was a passionate desire to get to work on this. Many participants were aware of the “shovel-ready” potential of re-using coal ash from the dumps where it is stored at Eraring and Vales Point power stations. People with experience of the “boom and bust” of

the resources sector, closure of the steel works, and restructuring in electricity generation had clear ideas about the need for coordination, planning and support to help individual workers and the broader community prepare and respond to changes.

***“There’s been a lot of dishonesty pointed toward the coal miners, they need honesty ... I’m worried that coal companies will walk away and leave us with bloody great holes to deal with.”***

***“I worked for TAFE for 27 years. Driving between Newcastle, Muswellbrook and Scone and over those years I saw a lot changes in the coal industry and how that affected all the other business and the kinds of people that could live in Muswellbrook because of the changes in air quality, and the cost of rents.”***

***“I come from a family that has strong mining connections but I now work for a domestic violence charity and I see how inequality of opportunity through all different regions and how it impacts families for generations.”***

***“We don’t have to have boom and bust: it can be handled differently if there are rules for companies that they have to form pools of employment, perhaps with other companies, so that people can be moved to different jobs within the region.”***

# What else we heard

***“The poor state of the environment in the Hunter, in view of the climate crisis, leaves the region vulnerable to the huge economic costs that will be incurred by natural disaster. Improving the quality of biodiversity in hand with renewable technologies is a major priority.”***

Maitland resident (survey)

***“In terms of what is the most immediate and urgent issue, it’s workers being put off and not even getting their entitlements. Everything else comes behind that. Yes it’s nice to have financial counselling, but it doesn’t help a hell of a lot if you haven’t been given redundancy pay. You’re scrambling to put food on the table, pay your mortgage or rent.”***

Lake Macquarie workshop participant

***“Women must be equally represented in all planning groups.”***

Cessnock resident (survey)

***“Planning for a fair transition to a better society. This should always be the objective.”***

Lake Macquarie resident (survey)

***“We need access and equity, community at all levels, government and non-government involvement, as well as input from community groups.”***

Lake Macquarie workshop participant

***“Free vocational training for displaced workers removes the threat of no job and gives people opportunities to embrace change.”***

Lake Macquarie resident (survey)

***“It starts from where we are. Building on what we have is important.”***

Singleton workshop participant

***“If all the local authority is doing is reacting to government-led priorities then it is a little bit limiting. The government also needs to listen to the local authority and act on that. It needs to be a two-way flow.”***

Muswellbrook workshop participant

***“We need a co-ordinated approach to industrial development and skills requirements to ensure we can attract and foster the new industries which will prosper as we move towards net zero emissions.”***

Lake Macquarie resident (survey)

***"I'm worried if we do as we have always done, we are signing our grandchildren into a world of heat, food scarcity and terrible air, and a greater division between the wealthy and the poor."***

Lake Macquarie resident (survey)

***"We need to economically and socially leverage our unique advantages – proximity to existing large power infrastructure for new battery manufacturing and battery power stations, huge potential renewable energy sources, a port, potentially sustainable farming and forestry in carbon capture and organic food."*** Newcastle resident (survey)

***"My daughter owns a business in both Scone and Muswellbrook and I am concerned that there will not be industries/population for her business to be viable."***

Muswellbrook resident (survey)

***"I hope there can be funding for renewable and other projects so that workers can re-skill and participate. Keep local people working towards something for their own, and their community's future."*** Maitland resident (survey)

***"If workers can commence vocational education now they would be supported psychologically because they could see the pathway to future prospects."***

Maitland workshop participant

***"As a young person, I personally have great concerns about the trajectory of climate change and the lack of reasonable action taken by those who could make the biggest difference ... the Hunter absolutely has the potential to pioneer in the energy sector with a green perspective. Australia, as it lends the keys to young people, is going to live or die from how it deals with the real, physical problems of climate change."***

Maitland resident (survey)

***"There is a lot here about opening up land for new enterprises and industries. A lot of the land surrounding the mines is natural habitat and we need to assess and consider the habitat avenues. We have ignored these things for so long. We need to consider the long-term effects on the environment from opening up all this land."*** Lake Macquarie workshop participant

***"Analysis is clear that what works is when companies, the community, and the government come together to plan and that this plan is executed."***

Maitland workshop participant

***"With a boom in the landcare industry I could find better opportunities for better paying jobs to support myself and my future family."***

Newcastle resident (survey)



# Dr Liam Phelan

## Senior Lecturer and Program Convenor, Bachelor of Science

School of Environmental and Life Sciences,  
University of Newcastle, Australia

Adjunct, Johns Hopkins University, U.S.

### Snapshot

#### Research and Innovation

- International and national recognition across two fields - environmental studies and higher education – exemplified by publishing in A\* and A journals in both fields, a research award and numerous citations (~770, h-index of 15).
- ~30 sole or co-authored publications in prestigious international and national journals and books.
- \$387,000 in grant income as Chief Investigator.

#### Teaching and Learning

- Impact recognised across UON, nationally and internationally.
- Multiple national and other teaching awards, and exceptional student feedback and teaching scores.
- National and international impact through (i) co-leading a national project to define teaching and learning academic standards for environment and sustainability, and (ii) a national initiative to develop and disseminate the Peer Assisted Teaching Scheme.

#### Service and Engagement

- Exceptional service within UON and the wider academy, in my community and internationally.
- Equity Ambassador for Access and Student Experience at UON.
- International recognition for service with civil society organisations in Australia and beyond.

# Detailed curriculum vitae: Dr Liam Phelan

## **1. PhD and other qualifications**

**Doctor of Philosophy** (2011) Macquarie University. In Environment & Geography: The relationship between anthropogenic climate change and the insurance system: Imperatives, options, and reflections on theory [<http://hdl.handle.net/1959.14/125124>].

**Master of Leadership and Management in Education** (2014) University of Newcastle.

**Graduate Certificate in the Practice of Tertiary Teaching** (2009) University of Newcastle.

**Bachelor of Arts (Honours)** (1996) University of New South Wales, Sydney. In Environmental Studies and Science & Technology Studies. Thesis title: Technology for hegemony: The developmentalisation of the portable sawmill. A case study of the Pacific Heritage Foundation Eco-forestry Project in Arabam, Papua New Guinea.

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## **2. Awards, fellowships and memberships**

### **Awards – research**

2012 Eric Anderson Award for best article in *Australasian Journal of Environmental Management*

2011 Nominated for the Australian Meteorological and Oceanographic Society's Uwe Radok Award for best PhD Thesis 2009/2010

### **Awards – teaching**

2015 Green Gowns Australasia Award in the Learning, Teaching & Skills category for 'Building national consensus for essential learning in tertiary sustainability education'

2012 Office for Learning and Teaching National Citation 2012 for Outstanding Contribution to Student Learning 'For inspiring active online student engagement by designing and implementing innovative and highly effective initiatives to foster online students' sense of belonging to learning communities'

2011 Postgraduate Students' Association's Online Teacher of the Year Award

2011 Vice-Chancellor's Award for Teaching Excellence for Sessional Staff

### **Award - service**

2005 Free Spirit Award (international) for service to the Tibetan people

### **Fellowships**

2016+ Senior Research Fellow, Earth System Governance Network

2015+ Fellow, Higher Education Research and Development Society of Australasia

2012-2016 Research Fellow, Earth System Governance Network

2013-2015 Invited Assessor, Office for Learning and Teaching

2014 Invited participant, Club of Rome Workshop on Decoupling Growth

2012 Invited participant, Volkswagen Foundation Workshop Limits to Growth Revisited

- 2012 Invited participant, DISCCRS Symposium, Colorado, funded by the National Science Foundation and the National Aeronautics and Space Administration
- 2012 Invited participant, Asia Pacific Network for Global Change Research Workshop on Climate Change Governance in the Asia-Pacific Region
- 2011 Invited participant, Climate and Environmental Governance Network (ANU) Governance for Green Growth? Workshop
- 2009 Invited participant, Marie Skłodowska-Curie Actions (European Commission) Workshop: The Challenge of Adaptive Governance, Free University Amsterdam
- 2008 Invited participant, ETH Swiss Federal Institute of Technology Workshop on Sustainability & Technology: Climate Change, Uncertainty & Strategic Management
- 2007 Invited participant, Marie Skłodowska-Curie Actions (European Commission) Workshop: Participation in Earth System Governance, Free University Berlin

### **Memberships – editorial boards**

- 2014-18 Associate Editor, *Journal of Environmental Studies and Sciences*
- 2013+ Editorial Board member, *Human Ecology Review*
- 2012+ Editorial Board member, *Distance Education*

### **Memberships – other**

- 2016+ National Councillor and Executive Committee Member, National Tertiary Education Union Newcastle Branch
- 2013+ Member, Society for Human Ecology
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## **3. Current employment**

- 2012+ **University of Newcastle**  
Senior Lecturer and Program Convenor, School of Environmental and Life Sciences  
Equity Ambassador for Access and Student Experience, Centre of Excellence for Equity in Higher Education (2016)
- 2014+ **Johns Hopkins University, U.S.**  
Adjunct Lecturer, Zanvyl Krieger School of Arts and Sciences

## 4. Previous employment

### Academic employment

- 2004-2011 **University of Newcastle**  
Sessional lecturer
- 2011 **University of New South Wales**  
Sessional lecturer
- 1996-2000 **University of New South Wales**  
Tutor

### Other employment

- 2001-2005 **Australia Tibet Council**  
National Campaigns Coordinator
- 2002-2003 **Sustainable Energy & Economy Network (SEEN), Institute for Policy Studies, U.S.**  
Policy Analyst
- 1994-2000 **AID/WATCH**  
Executive Director (1999-2000); Campaigns Coordinator (1996-1998); Campaigner (1994-1996)

## 5. Grants (total funding: \$387,453)

My research agenda has been supported nationally by the Office for Learning and Teaching, The Australian National University and Macquarie University. Internationally my research agenda has been supported financially by the European Commission in Europe, the Volkswagen Foundation in Germany, the Swiss Federal Institute of Technology in Switzerland, and the National Science Foundation and the National Aeronautics and Space Administration in the U.S.

### HERDC funding

CI	Support Type	Project Title	Year(s)	Amount
Kelder, J.-A., Williams, A.-M., Carr, A., Walls, J., <b>Phelan, L.</b> , Cottman, C., Zeeng, L., De Fazio, T. & Carbone, A.	Office for Learning and Teaching	Adapting and extending PATS: variations on purpose, people and process [Extension grant, extending on 'National Teaching Senior Fellowship - Peer Assisted Teaching Scheme (NTSF-PATS). 2012 OLT National Teaching Senior Fellowship, Monash University' (completed 2014)]	2015	\$30,000
<b>Phelan, L.</b> & McBain, B.	Office for Learning and Teaching	Learning and Teaching Academic Standards for Environment and Sustainability	2014-2015	\$220,000
<b>Phelan, L.</b>	Office for Teaching and Learning	Grant attached to the National Citation 2012 for Outstanding Contribution to Student Learning 'For inspiring active online student engagement by	2012	\$10,000

		designing and implementing innovative and highly effective initiatives to foster online students' sense of belonging to learning communities.'		
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### Other external competitive funding

CI	Support Type	Project Title	Year(s)	Amount
<b>Svenson, J. &amp; Phelan, L.</b>	New Colombo Plan	Climate Connections Across the Pacific	2019-21	\$198,000
<b>Phelan, L.</b>	Volkswagen Foundation	Club of Rome Workshop on Decoupling Growth, Hannover	2014	\$5,000*
<b>Phelan, L.</b>	National Science Foundation and National Aeronautics and Space Administration	DISCCRS VII Symposium (Dissertations Initiative for the Advancement of Climate Change Research), Colorado Springs	2012	\$4,000*
<b>Phelan, L.</b>	Volkswagen Foundation	Limits to Growth Workshop, Hannover & Visselhoevede	2012	\$5,000*
<b>Phelan, L.</b>	Macquarie University	International Travel Grant for International Studies Association Annual Conference, New Orleans	2010	\$2,700
<b>Phelan, L.</b>	Australian National University	Travel support for Governance for Green Growth? Workshop, ANU, Canberra	2010	\$300
<b>Phelan, L.</b>	Macquarie University	International Travel Grant for COP15, Copenhagen	2009	\$7,000
<b>Phelan, L.</b>	European Commission	Marie Skłodowska-Curie Actions Workshop: The Challenge of Adaptive Governance, Free University Amsterdam, Amsterdam	2009	\$1,870*
<b>Phelan, L.</b>	Macquarie University	GSE Conference Support Fund for conference and travel support – CSIRO Workshop, Bowral	2009	\$400
<b>Phelan, L.</b>	Macquarie University	GSE Conference Support Fund for conference and travel support – CSIRO Conference, Perth	2009	\$500
Newcastle City Council, Save Mayfield Swimming Pool Campaign (including <b>Phelan, L.</b> )	Port Waratah Coal Services	Community development – solar heating refurbishment, Mayfield Swimming Pool	2009	\$15,000
<b>Phelan, L.</b>	European Commission	Marie Skłodowska-Curie Actions Workshop: Participation in Earth System Governance, Free University Berlin, Berlin	2008	\$2,625*
<b>Phelan, L.</b>	Macquarie University	International Travel Grant, fieldwork	2008	\$1,500

		in Europe		
<b>Phelan, L.</b>	ETH Swiss Federal Institute of Technology	ETH Workshop on ETH PhD Academy on Sustainability & Technology: Climate Change, Uncertainty & Strategic Management, Zurich & Appenzell	2007	\$2,880*
<b>Phelan, L.</b>	Macquarie University	Graduate School of the Environment Research Support Application, fieldwork in Europe	2007	\$8,023
<b>Phelan, L.</b>	Macquarie University	Graduate School of the Environment Research Support Application, CSIRO conference, Sydney	2007	\$440

### Other internal competitive funding

<b>CI</b>	<b>Support Type</b>	<b>Project Title</b>	<b>Year(s)</b>	<b>Amount</b>
<b>Phelan, L.</b>	Centre of Excellence for Equity in Higher Education	Equity Ambassador for Access and Student Experience	2016	\$20,500
<b>Phelan, L.</b>	Centre of Excellence for Equity in Higher Education	Equity and postgraduate coursework (PGCW) programs: Scoping out a new research agenda and opportunities for changes in policy and praxis	2015	\$30,000
<b>Phelan, L.</b>	FSCIT	Course Development Funding for the Peer Assisted Teaching Scheme	2014	\$7,000
<b>Phelan, L.</b>	Centre for Teaching and Learning	Teaching & assessing oral presentation skills online: A cross-UoN pilot	2013	\$10,000
<b>Phelan, L.</b>	GradSchool	Conference & travel support (ICDE 24 <sup>th</sup> World Conference, Nusa Dua)	2011	\$1,515*
<b>Phelan, L.</b>	Tom Farrell Institute	Conference & travel support (NCCARF, Gold Coast)	2010	\$1,200

\* Estimated grant values, including direct grant payments and purchases made on my behalf, e.g. airfares,

## 6. Academic publications

### Research agenda

My research agenda spans two fields: environmental studies and higher education, and I drive it forward through publishing in prestigious international outlets, supervising PhD candidates, and editorial and reviewer roles with prestigious journals and international and national research funding bodies.

### Publication highlights (top 10 publications)

**Phelan, L.**, Henderson-Sellers, A. & Taplin, R. 2013. The political economy of addressing the climate crisis in the Earth system: Undermining perverse resilience. *New Political Economy*. 18(2):198-226. [DOI: 10.1080/13563467.2012.678820].

Evans, G. & **Phelan, L.** 2016. Transition to a post-carbon society: Linking environmental justice and just transition discourses. *Energy Policy*. [DOI: 10.1016/j.enpol.2016.05.003].

*This article is published very recently in the preeminent journal in the energy policy area, ranked A in ERA 2010. It applies the conceptual link developed in the article above at a regional scale and context, and in relation to an issue of global significance: how to engineer a socially just shift from a fossil fuel-based economy to a zero emissions economy. **This article has been cited 167 times.***

crisis in the Earth system: Undermining perverse resilience. *New Political Economy*. 18(2):198-226. [DOI: 10.1080/13563467.2012.678820].

*This article sets out a novel conceptual link between hegemony (drawn from neo-Gramscian political economy) and resilience (drawn from analysis of social-ecological systems) in order to better explain dynamism in social-ecological systems such as the Earth system in times of crisis. Climate change is one such example. As one reviewer noted, 'This is a first-rate article, which deals thoughtfully and originally with an issue whose importance would be difficult to understate. The proposed synthesis of resilience approaches that are increasingly popular in environmental studies/science, and neo-Gramscian approaches from international political economy, makes a significant contribution to developing a properly socio-ecological (with emphasis on both halves of that term) understanding of the Earth system... the particular way in which this problem is resolved here, and the depth and specificity with which the resolution... is developed, make this paper very worthy of publication'. It is still recent and has already been **cited 68 times** by scholars working in diverse disciplines across the environmental studies field such as climate modelling, environmental studies and politics, geography and cultural studies.*

**Phelan, L.**, Taplin, R., Henderson-Sellers, A. & Albrecht, G. 2011. Ecological viability or liability?: Insurance system responses to climate risk. *Environmental Policy & Governance*. 21(2): 112-130. [DOI: 10.1002/eet.565].

*This article is significant because it is where co-authors and I set out both the significant limitations of the insurance industry's – to then – adaptive (rather than mitigative) responses to climate change, as well as the existential risk climate change presents to the insurance industry. While insurers have been monitoring climate change since the early seventies, this was the first study using a complex adaptive systems approach to argue that insurers need to move beyond adaptation to mitigation. In the past two years, some large European insurers have announced they will divest from fossil-fuel intensive sectors, such as coal mining, and action of this sort this is consistent with the arguments developed in this article. It has been **cited 44 times**, including in Science.*

**Phelan, L.** 2011. Managing climate risk: Extreme weather events and the future of insurance in a climate-changed world. *Australasian Journal of Environmental Management*. 18(4): 223-232. [DOI: 10.1080/14486563.2011.611486].

*This article won the Eric Anderson Award for best article in Australasian Journal of Environmental Management, and was lauded for ‘uniquely providing clarity to the concept of climate unpredictability... providing an optimal balance between science, finance and policy’. It has been **cited 34 times** by scholars in diverse disciplines across the environmental studies field, including financial risk management, climate modelling, and environmental management.*

**Phelan, L.,** McGee, J. & Gordon, R. 2012. Cooperative governance: One pathway to a stable-state economy. *Environmental Politics*. 21(3): 412-431. [DOI: 10.1080/09644016.2012.671572].

*This article is significant in the way it establishes a cross-scale link between organisations, the global economy, and the Earth system as a whole. Further, it suggests alternatives to growth-dependent organisational forms, such as publicly listed corporations, arguing that cooperatives are one example of organisational forms that allow for the pursuit of goals beyond economic growth. It has been **cited 26 times** by scholars in diverse disciplines across the environmental studies field including psychology and environmental management.*

McBain, B., Drew, A., James, C., **Phelan, L.**, Harris, K. & Archer, J. 2016. Student experience of oral communication assessment tasks online from a multi-disciplinary trial. *Education + Training*. 58(2): 134-149. [DOI: 10.1108/ET-10-2014-0124].

*This article is significant in its analysis of the opportunities and constraints of teaching and assessing oral communication skills online. This article **has been cited 17 times** and was developed from a research project I led, drawing together colleagues from all five of UON’s faculties, with support of a small (\$10,000) internal grant from the Centre for Teaching and Learning.*

Harris, K., **Phelan, L.**, McBain, B., Archer, J., Drew, A., & James, C. 2016. Attitudes toward Learning Oral Communication Skills Online: The Importance of Intrinsic Interest and Student-Instructor Differences. *Educational Technology Research & Development*. [DOI: 10.1007/s11423-016-9435-8].

*This article is significant for its development of a new scale to better understand students’ experiences of learning technologies used in online learning. This article **has been cited 16 times** and was developed from a research project I led, drawing together colleagues from all five of UON’s faculties, with support of a small (\$10,000) internal grant from the Centre for Teaching and Learning.*

Carbone, A. Ross, B., **Phelan, L.**, Lindsay, K., Drew, S., Stoney, S. & Cottman, C. 2015. Course evaluation matters: improving students’ learning experiences with a peer-assisted teaching program. *Assessment and Evaluation in Higher Education*. 40(2): 165-180. [DOI: 10.1080/02602938.2014.895894].

*This article is significant in its analysis of the Peer Assisted Teaching Scheme (PATS) as it has been trialled and implemented at universities nationally. The development of PATS has been led by Associate Professor Angela Carbone at Monash, and a team comprising colleagues from a number of institutions nationally. **This article has already been cited 37 times.***

Drew, S., **Phelan, L.**, Lindsay, K., Carbone, A., Ross, B., Stoney, S. Cottman, C. & Wood., K. 2016. Formative observation of teaching: Focusing peer assistance on teachers’ developmental goals. *Assessment and Evaluation in Education*.

*This article is significant in the way it extends on the research and analysis developed in the article above; it **has been cited 24 times.***

Picasso, V. & **Phelan, L.** 2014. The evolution of open access to research and data in Australian higher education. *Universities and Knowledge Society Journal*. 11(3). [DOI: 10.7238/rusc.v11i3.2076].

This article is an example of my support for academic and professional staff colleagues – my co-author is a professional staff colleague based in the library, and this article draws on both her and my research and practice interests in open educational resources, open access publishing, and open data. Appropriately, the article is published in an open access journal; it **has been cited 42 times**.

## Publications

### Book

Holley, C., **Phelan, L.**, and Shearing, C. (Eds), (2021). *Criminology and Climate: Insurance, Finance and the Regulation of Harmscapes*. Routledge/CRC Press.

### Book chapters – environmental studies

Holley, C., Phelan, L. & Shearing, C. (2021) Dark clouds: regulatory possibilities, *Criminology and Climate: Insurance, Finance and the Regulation of Harmscapes*, 20pp, Holley, C., Phelan, L. & Shearing, C. (Eds), Routledge/CRC Press.

Mallon, K & Phelan, L. (2021) Quantifying changing climate risks and built environments in Australia: Implications for lenders, insurers and regulators, *Criminology and Climate: Insurance, Finance and the Regulation of Harmscapes*, 23pp, Holley, C., Phelan, L. & Shearing, C. (Eds), Routledge/CRC Press.

Connor, T., Robertson, B., Griffiths, T. G., & **Phelan, L.** (2015). Swimming against the neoliberal tide: The campaign to save Mayfield pool. In J. Bennett, N. Cushing, & E. Eklund (Eds.), *Radical Newcastle* (pp. 232-239). Sydney: NewSouth Publishing. Retrieved from <http://www.newsouthbooks.com.au/>

**Phelan, L.**, Harwood, S., Henderson-Sellers, A., & Taplin, R. (2012). Adaptation is not enough: Why Insurers Need Climate Change Mitigation. In *Leal Filho, Walter and Manolas, Evangelos. English through climate change* (pp. 103-118). Orestiada, Greece : Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace. Retrieved from <http://hdl.handle.net/1959.14/211861>

**Phelan, L.**, Henderson-Sellers, A., & Taplin, R. (2011). Mitigation of the Earth's Economy: a Viable Strategy for Insurance Systems. In L. Filho, & Walter (Eds.), *The Economic, Social and Political Elements of Climate Change* (1 ed., pp. 81-98). Berlin, Germany: Springer Verlag.

### Book chapters – higher education

**Phelan, L.** 2016 In press. Bringing focus through community: Social learning in online teaching, learning and research. In A. Cater-Steel & J. McDonald (Eds). *Implementing Communities of Practice in Higher Education - Dreamers and Schemers*. Springer Verlag: Berlin. [NOTE: Not yet listed in NURO]

McBain, B., & **Phelan, L.** (2016). Building students' communication skills and understanding of environmental and sustainability issues interactively and cumulatively with Pecha Kucha presentations. In *Learner-Centered Teaching Activities for Environmental and Sustainability Studies* (pp. 279-284). doi:[10.1007/978-3-319-28543-6\\_38](https://doi.org/10.1007/978-3-319-28543-6_38)

### Refereed journal articles – environmental studies

- Evans, G., & **Phelan, L.** (2016). Transition to a post-carbon society: Linking environmental justice and just transition discourses. *Energy Policy*. doi:[10.1016/j.enpol.2016.05.003](https://doi.org/10.1016/j.enpol.2016.05.003)
- McGee, J., **Phelan, L.**, & Wenta, J. (2014). Writing the Fine Print: Developing Regional Insurance for Climate Change Adaptation in the Pacific. *Melbourne Journal of International Law*, 15(2), 444-472. Retrieved from <http://search.informit.com.au/documentSummary;dn=858728929545609;res=IELHSS>
- Connor, T., & **Phelan, L.** (2015). Antenarrative and Transnational Labour Rights Activism: Making Sense of Complexity and Ambiguity in the Interaction between Global Social Movements and Global Corporations. *Globalizations*, 12(2), 149-163. doi:[10.1080/14747731.2013.814458](https://doi.org/10.1080/14747731.2013.814458)
- Phelan, L.**, Henderson-Sellers, A., & Taplin, R. (2013). The political economy of addressing the climate crisis in the Earth system: Undermining perverse resilience. *New Political Economy*, 18(2), 198-226. doi:[10.1080/13563467.2012.678820](https://doi.org/10.1080/13563467.2012.678820)
- Phelan, L.**, Jones, H., & Marlon, J. R. (2013). Bringing New Ph.D.s Together for Interdisciplinary Climate Change Research. *Eos, Transactions American Geophysical Union*, 94, 57. doi:[10.1002/2013eo050009](https://doi.org/10.1002/2013eo050009)
- Griffiths, T., Connor, T., Robertson, B., & **Phelan, L.** (2014). Is Mayfield Pool saved yet? Community assets and their contingent, discursive foundations. *Community Development Journal*, 49(2), 280-294. doi:[10.1093/cdj/bst039](https://doi.org/10.1093/cdj/bst039)
- Phelan, L.**, McGee, J. S., & Gordon, R. B. (2012). Cooperative governance: One pathway to a stable-state economy. *Environmental Politics*, 21(3), 412-431.
- Phelan, L.** (2012). Clean Energy, Climate and Carbon [Book Review]. *Air Quality and Climate Change*, 46(4), 13.
- Phelan, L.**, Henderson-Sellers, A., Taplin, R., & Albrecht, G. (2011). Ecological viability or liability?: Insurance system responses to climate risk. *Environmental Policy and Governance*, 21(2), 112-130.
- Phelan, L. P.** (2011). Managing climate risk: Extreme weather events and the future of insurance in a climate-changed world. *Australasian Journal of Environmental Management*, 18(4), 223-232.
- Phelan, L.**, Henderson-Sellers, A., & Taplin, R. (2010). Climate change, carbon prices & insurance systems. *International Journal of Sustainable Development and World Ecology*, 17(2), 95-108.
- Phelan, L.** (2010). What to make of COP 15?: A ringside report. *Air Quality and Climate Change*, 44(1), 14-15.
- Phelan, L.** (2010). All hands to the pump: Notes from NCCARF's 2010 International Climate Adaptation Futures Conference. *Air Quality and Climate Change*, 44(3), 16-17.

### Refereed journal articles – higher education

- Phelan, L.**, Baker, S., Cooper, G., Horton, T., Whitling, S., Hodge, P., Cutts, K., Bugir, C. K., Howell, L. G., Latham, K. G., Stevens, H. R., Witt, R. R., and McBain, B., 2022. Putting the PASS in Class: Peer Mentors' Identities in Science Workshops on Campus and Online, *Journal of Peer Learning*, 14, 21-36. Available at: <https://ro.uow.edu.au/ajpl/vol14/iss1/3>.
- McBain, B., Yardy, A., Martin, B., **Phelan, L.**, van Altena, I., McKeowen, J., Pemberton, C., Tose, H., Fratus, L., and Bowyer, M. (2020). Teaching Science Students How to Think. *International Journal of*

*Innovation in Science and Mathematics Education*, 28(2), 28-35. Available at:

<https://doi.org/10.30722/IJISME.28.02.003>.

- Drew, S., **Phelan, L.**, Lindsay, K. A., Carbone, A., Ross, B., Wood, K., . . . Cottman, C. (2016). Formative observation of teaching: focusing peer assistance on teachers' developmental goals. *Assessment and Evaluation in Higher Education*, 2016, 1-16. doi:[10.1080/02602938.2016.1209733](https://doi.org/10.1080/02602938.2016.1209733)
- Ross, B., Carbone, A., Lindsay, K. A., Drew, S., **Phelan, L.**, Cottman, C., & Stoney, S. (2016). Developing Educational goals: insights from a Peer Assisted Teaching Scheme. *International Journal for Academic Development*, 2016.
- Harris, K. M., **Phelan, L.**, McBain, B., Archer, J., Drew, A. J., & James, C. (2016). Attitudes toward learning oral communication skills online: the importance of intrinsic interest and student-instructor differences. *Educational Technology Research and Development*, 1-19. doi:[10.1007/s11423-016-9435-8](https://doi.org/10.1007/s11423-016-9435-8)
- McBain, B., Drew, A., James, C., **Phelan, L.**, Harris, K., & Archer, J. (2016). Student Experience of Oral Communication Assessment Tasks Online from a Multi-disciplinary Trial. *Education + Training*, 58(2), 134-149. doi:[10.1108/ET-10-2014-0124](https://doi.org/10.1108/ET-10-2014-0124)
- Carbone, A., Ross, B., **Phelan, L.**, Lindsay, K., Drew, S., Stoney, S., & Cottman, C. (2014). Course evaluation matters: improving students' learning experiences with a peer-assisted teaching programme. *Assessment and Evaluation in Higher Education*. doi:[10.1080/02602938.2014.895894](https://doi.org/10.1080/02602938.2014.895894)
- Picasso, V., & **Phelan, L.** (2014). The evolution of open access to research and data in Australian higher education. *RUSC Universities and Knowledge Society Journal*, 11(3), 128-141. doi:[10.7238/rusc.v11i3.2076](https://doi.org/10.7238/rusc.v11i3.2076)
- Phelan, L.** (2012). Assessment is a many splendoured thing: Fostering online community and lifelong learning. *European Journal of Open, Distance and E-Learning*, 1(1), 1-12.
- Phelan, L.** (2012). Politics, practices, and possibilities of open educational resources. *Distance Education*, 33(2), 279-282.
- Phelan, L.** (2012). Interrogating students' perceptions of their online learning experiences with Brookfield's critical incident questionnaire. *Distance Education*, 33(1), 31-44.
- Phelan, L.** (1998). AID/WATCH: Educating for social change. *The Bulletin of Good Practice in Adult and Community Education*, 4, 31-35.

### **Invited seminar, keynote address, conference papers and workshop presentations – environmental studies**

- INVITED SEMINAR: Phelan, L.** 2015. Undermining Perverse Resilience: The Political Economy of Addressing Climate Crisis in the Earth System. 6 October. University of Northern Arizona, Flagstaff, AZ, U.S.
- Phelan, L.**, Bernstein, J. & Pacheco-Vega, R. 2015. Building a Community of Practice around Online and Blended Learning in Environmental Studies and Sciences (Workshop). *Confronting Frontiers, Borders and Boundaries: Association for Environmental Studies and Sciences 2015 Annual Conference*. 24-27 June. University of California, San Diego. San Diego.
- Phelan, L.**, McBain, B. Brown, P., Brown, V., Hay, I., Horsfield, R., Taplin, R. & Tilbury, D. 2015. What do graduates from environmental programs need to know? What do they need to be able to

do? *Confronting Frontiers, Borders and Boundaries: Association for Environmental Studies and Sciences 2015 Annual Conference*. 24-27 June. University of California, San Diego. San Diego.

Rosales, J., Caplow, S., Guidotti, T. & **Phelan, L.** 2015. Redesigning ESS Programs for the Anthropocene (Discussion Symposium). *Confronting Frontiers, Borders and Boundaries: Association for Environmental Studies and Sciences 2015 Annual Conference*. San Diego. 24-27 June.

Alexander, M. & **Phelan, L.** 2013. Monocultures at multiple scales: The dominance of the for-profit corporation as a threat to cultural, organisational and ecological diversity. *Decisions that Work: Linking Sustainability, Environmental Responsibility and Human Well-being. XIX International Conference of the Society for Human Ecology*. 4-8 February. Canberra. Australian National University.

**Phelan, L.**, 2013. Achieving radical emissions reductions by undermining perverse resilience [poster]. *The Radical Emission Reductions Conference*. Tyndall Centre for Climate Change Research. 10-11 December. London. The Royal Society.

Robertson, B., Griffiths, T., Connor, T. & **Phelan, L.** 2013 Is Mayfield Pool saved yet? Political education through local community activism. *The Australian and New Zealand Comparative and International Education Society 2013: Learning and living with the world and in the world*. 26-28 November. Newcastle. University of Newcastle.

Phelan, L. Henderson-Sellers, A. & Taplin, R. Researching environmental change: The case for employing critical transdisciplinary research methodologies. *Inspiring connections: Institute of Australian Geographers Conference*. 2-4 July. Macquarie University. Sydney.

**Phelan, L.** 2012. Will insurance cover my climate change butt? *7<sup>th</sup> DISCCRS Symposium*. 13-20 October. La Foret Conference Center, Colorado.

**Phelan, L.** & Mc Gee, G. 2012. Writing the fine print: Effective climate risk insurance for Pacific Island States. *Asia Pacific Network for Global Change Research Workshop on Climate Change Governance in the Asia-Pacific Region: Agency and Adaptiveness*. 14-16 March. Canberra. Australian National University.

**Phelan, L.**, Henderson-Selles, A. & Taplin, R. 2012. Resilience, perverse resilience and hegemony: The political economy of climate crisis and Earth system stability. 24 July. *Life + Debt*. University of Technology, Sydney. Sydney.

**Phelan, L.**, McGee, J. & Gordon, R. 2011. Cooperative governance of economic enterprises: One contribution towards challenging the growth imperative? *Governance for Green Growth?: ECGNet Workshop*. 25 February. Canberra. Australian National University.

**KEYNOTE ADDRESS: Phelan, L.** 2010. Blood on the floor: Political economy of the climate crisis. *Climate Futures 2010 Postgraduate Forum*. 1 December. Sydney. Macquarie University.

**Phelan, L.**, Henderson-Sellers, A. & Taplin, R. 2010. Discursive dominance of the Earth system: Climate change and contestation. *Democratizing Climate Governance*. 15-16 July. Canberra. Australian national University.

**Phelan, L.**, Henderson-Sellers, A., & Taplin, R. 2010. Adaptation with grace: Searching for stability in the non-linear Earth system [poster]. *Climate adaptation futures: NCCARF 2010 International Climate Change Adaptation Conference*. 28 June-1 July. Gold Coast. National Climate Change

Adaptation Research Facility. [Abstract available online at <http://www.nccarf.edu.au/conference2010/presentations>].

- Phelan, L.,** Henderson-Sellers, A. & Taplin, R. 2010. Political economy of social-ecological systems in crisis: Sharpening theory tools for praxis. *International Studies Association Annual Convention 2010: Theory vs. Policy? Connecting Scholars and Practitioners*. 17-20 February. New Orleans.
- Phelan, L.,** Henderson-Sellers, A., & Taplin, R. 2009. Blood on the floor: Political economy of social-ecological systems in crisis. *Earth System Governance: People, Places, and the Planet: Amsterdam Conference on the Human Dimensions of Global Environmental Change*. 2-4 December. Amsterdam. Vrije Universiteit Amsterdam.
- Phelan, L.,** Henderson-Sellers, A., & Taplin, R. 2009. Reflexive mitigation of the Earth's carbon economy: A viable strategy for insurance systems. *Earth System Governance: People, Places, and the Planet: Amsterdam Conference on the Human Dimensions of Global Environmental Change*. 2-4 December. Amsterdam. Vrije Universiteit Amsterdam.
- Phelan, L.** 2009. Local action empowerment. *Coupling People into Climate Change Actions: Models of Social Decision Making Workshop*. 13 January. Sydney. Macquarie University.
- Phelan, L.,** R. Taplin & Albrecht, G. 2008. A powerful agent of long-term socio-ecological governance?: The global insurance industry as a driver for greenhouse mitigation and adaptation. *2008 Berlin Conference on the Human Dimensions of Global Environmental Change*. 22-23 February. Berlin. Environmental Policy Research Centre, Freie Universität Berlin. [Paper online at [http://userpage.fu-berlin.de/~ffu/akumwelt/bc2008/papers/bc2008\\_145\\_Phelan-EtAl.pdf](http://userpage.fu-berlin.de/~ffu/akumwelt/bc2008/papers/bc2008_145_Phelan-EtAl.pdf)].
- Phelan, L. &** Taplin, R. 2008. A powerful agent of change? The global insurance industry as a driver for greenhouse mitigation & adaptation. *Climate Change, Uncertainty, and Strategic Management: ETH PhD Academy on Sustainability & Technology: Climate Change, Uncertainty & Strategic Management*. 27 January-1 February. Appenzell & Zurich. Swiss Federal Institute of Technology.
- Phelan, L. &** Taplin, R. 2007. A Powerful Agent of Change?: The global insurance industry as a driver for greenhouse mitigation and adaptation. *Greenhouse 2007*. CSIRO. Sydney.
- Phelan, L.,** Henderson-Sellers, A. & Taplin, R. 2009. Linking carbon prices and ecological necessity: Insurance systems and reflexive mitigation of climate change. *Greenhouse 2009*. CSIRO. Perth.
- Phelan, L.** 2003. Public Financing for the Energy Sector (Fossil Fuel Extraction & Burning) in South Asia, East Asia & the Pacific since 1992. *Asia-Pacific Conference on Debt and Privatisation*. 12 December. Bangkok. Jubilee South.
- Phelan, L.** 2002. The Export Finance & Insurance Corporation and reform: Walking the line. Paper for the *International Strategy Session on Export Credit Agency Reform*. 8-12 March. Berlin. Urgewald and Heinrich Böll Foundation.
- Phelan, L.** 2002. Governance issues in finance: Export credit agencies. *Asia-Pacific Research Networks's Asia-Pacific Conference on Corruption and Governance*. August 2-3. Quezon City. IBON Foundation.
- Phelan, L.** 2000. Export Credit Agencies and movement on the environmental front: The Australian experience. *Third NGO Strategy Session on Export Credit Agencies*. 1-3 May. Jakarta. Bioforum.

Various including **Phelan, L.** 2000. The Jakarta Declaration for Reform of Official Export Credit and Investment Insurance Agencies. I chaired the drafting session at the *Third NGO Strategy Session on Export Credit Agencies*. 1-3 May. Jakarta. Bioforum. The Declaration has since been endorsed by around 350 civil society groups from 45 countries. The Jakarta Declaration has been published in numerous locations and is accessible at <http://www.eca-watch.org/goals/jakartadec.html>.

### **Invited seminars, conference papers and workshop presentations – higher education**

**INVITED SEMINAR: Phelan, L.,** McBain, B., Brown, P., Brown, V., Hay, I., Horsfield, R., Taplin, R. & Tilbury, D. 2015. Learning Standards for Environment and Sustainability - What is the critical learning university graduates need once they graduate from Higher Education Institutions in Australia, and why? 22 June. Gloucestershire University. UK.

**INVITED SEMINAR: Phelan, L.,** McBain, B., Brown, P., Brown, V., Hay, I., Horsfield, R., Taplin, R. & Tilbury, D. 2015. Learning Standards for Environment and Sustainability - What is the critical learning university graduates need once they graduate from Higher Education Institutions in Australia, and why? 25 June. Vienna University of Economics and Business. Vienna, Austria.

**Phelan, L.,** McBain, B., Brown, P., Brown, V., Hay, I., Horsfield, R., Taplin, R. & Tilbury, D. 2015. What is it that Australian university student need to know and be able to do to play their part in transformation to sustainability? *World Environmental Education Congress – 2015*. 29 June-2 July. Gothenburg, Sweden.

**Phelan, L. & McBain, B.** 2015. What do graduates of tertiary programs Earth System Governance need to know? What do they need to be able to do? *2015 Canberra Conference on Earth System Governance: Democracy and Resilience in the Anthropocene*. 14-16 December. Australian National University. Canberra.

**Phelan, L. & McBain, B.** 2015. Creating an iterative, patchwork consensus for teaching and learning complexity. *HERDSA 2015: Learning for Life and Work in a Complex World*. 6-9 July. Melbourne.

McBain, B. & **Phelan, L.** 2015. Teaching and assessing oral communication skills online: Constraints and opportunities. *HERDSA 2015: Learning for Life and Work in a Complex World*. 6-9 July. Melbourne.

Cottman C. (Chair), Rolheiser, C., Carbone, C., Kelder, J.-K., **Phelan, L.** & Walls, J. 2015. Exploring peer-to-peer leadership initiatives to develop SOTL capacity amongst faculty [panel presentation]. *12th Annual Conference of the International Society for the Scholarship of Teaching and Learning*. Melbourne. 27-30 October.

McBain, B. & **Phelan, L.** 2014. Leveraging from Formal Opportunities: Leadership for sustainability in Higher Education through the development of learning standards. *Higher Education for Sustainable Development: Higher Education Beyond 2014*. Nagoya, Japan. 9th November.

**Phelan, L.** Cottman, C., Tout, D., Carbone, A., Drew, S., Ross, B., Stoney, S. & Lindsay, K. 2013. Creating collegial frameworks to tighten and close student feedbacks [virtual presentation]. *ICERI 2013: 6th International Conference of Education, Research and Innovation*. 18-20 November 2013. Seville. International Association of Technology, Education and Development.

Carbone, A., Ross, B. Tout, D. Lindsay, K. **Phelan, L.**, Cottman, C., Readman, K. Drew, S. & Stoney, S. 2013. A Peer Assisted Teaching Scheme. *HERDSA 2013: The Place of Learning and Teaching*. 1-4 July. Auckland. Auckland University of Technology.

- Phelan, L.** 2013. A critical appraisal of MOOCS: One view from comparative education. *The Australian and New Zealand Comparative and International Education Society 2013: Learning and living with the world and in the world*. 26-28 November. Newcastle. University of Newcastle.
- McBain, B., & **Phelan, L.** 2013. Transformative social learning for sustainability in the online space. *HERDSA 2013: The Place of Learning and Teaching*. 1-4 July. Auckland. Auckland University of Technology.
- Hemsley, B. & **Phelan, L.** 2013. Using Twitter to engage students (#SLP2B) in teaching and learning with speech pathologists (#SLPeeps): A pilot project. *Speech Pathology Australia 2013 National Conference*. 23-26 June. Gold Coast.
- McBain, B. & **Phelan, L.** 2013. Transformative online social learning for sustainability. *Decisions that Work: Linking Sustainability, Environmental Responsibility and Human Well-being. XIX International Conference of the Society for Human Ecology*. 4-8 February. Canberra. Australian National University.
- Carbone, A., Ross, B., Lindsay, K., Drew, S., Stoney, S., Cottman, C. & **Phelan, L.** 2013. A multi-institutional trial of a peer assisted teaching scheme: Positive changes in course evaluation scores[accepted]. *2014 Conference of the International Consortium for Educational Development: Educational development in a changing world*. 15-18 June. Stockholm, Sweden. Karolinska Institutet.
- Hartman, D., Crofts, P. & **Phelan, L.** 2012. Intercultural, interdisciplinary and online: Collaborative international curriculum development in Family Studies. *The Future of eLearning: Collaboration, Engagement and Practice*. 8 June. Melbourne. University of Melbourne.
- Davis, J. & **Phelan, L.** 2012. The role of organisational autonomy in managing disruptive innovation: Universities and online education. *The Future of eLearning: Collaboration, Engagement and Practice*. 8 June. Melbourne. University of Melbourne.
- Phelan, L.**, 2010. Engaging online: Potential for deploying Brookfield's Critical Incident Questionnaire to support the online learning experience. *University Learning and Teaching Futures Colloquium: Rethinking Learning in Your Discipline*. 8-9 September. Armidale. University of New England.
- Phelan, L.**, 2010. Structuring for sustainable assessment: Case study of a disaggregated interdisciplinary assessment task from environmental studies. *University Learning and Teaching Futures Colloquium: Rethinking Learning in Your Discipline*. 8-9 September. Armidale. University of New England.

### **Non-peer reviewed journal articles**

- Norlen, D. & **Phelan, L.** 2002. Reforming ECAs: the story so far.... *Asian Labour Update*. 43(April-June). Journal of the Asia Monitor Resource Centre, Hong Kong.
- Contribution by **Phelan, L.** to Goodman, J. 2002. Financial power + ECAs: Themes and alternatives. *Asian Labour Update*. 43(April-June). Journal of the Asia Monitor Resource Centre, Hong Kong.
- Phelan, L.** 2002. The War of Terror's other front: The Philippines. *Human Rights Defender*. 12(1). Journal of the Australian Human Rights Centre and the Diplomacy Training Program, UNSW. Sydney.

## Reports and submissions to parliamentary and other inquiries

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### **Creative work**

I have a small credit for the *Maralinga* script, through involvement in researching and interviewing nuclear veterans. Paul Brown is the script writer. The team of researchers, interviewers and interviewees are all acknowledged as sharing rights to the script. The 2006 season was directed by acclaimed director Wesley Enoch and starred Roy Billing. In 2007 the play was nominated for an Australian Writers Guild Award for Community & Youth Theatre. See

<https://www.ausstage.edu.au/pages/event/69850>.

### **Selected journalistic-style writing for lay audiences**

Some examples of my journalistic-style written communication are:

Phelan, L. and Crofts, K. 2022. NSW's biggest coal mine to close in 2030. Now what about the workers? *The Conversation*. 17 June. Accessible at <https://theconversation.com/nsws-biggest-coal-mine-to-close-in-2030-now-what-about-the-workers-185292>.

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