2025 consultation

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THE UNIVERSITY OF SYDNEY
Sydney Environment Institute

11 July 2025

Submission to NSW Net Zero Commission

2025 consultation paper

About the Sydney Environment Institute

The Sydney Environment Institute (SEI) is a world-leading multidisciplinary environmental research institute at the University of Sydney. In partnership with communities, governments, and industries, we work together to address critical environmental challenges for a sustainable future. Our work integrates policy analysis and community-focused empirical research to examine the social, political, ecological, and economic dimensions of climate change, highlighting the importance of a holistic approach to climate policymaking.

Submission overview and recommendations

SEI welcomes the opportunity to provide a submission to the NSW Net Zero Commission. SEI has addressed seven questions from the submission, reflecting SEI's strength in adaptation research, community engagement and justice, being questions 1, 2, 19, 20, 23, 24 and 27.

The concerns and recommendations outlined in this submission are empirically informed by SEI's research across several projects that are conducted from a ground-up, community-based approach that foregrounds local knowledges while integrating it with systemic socio-ecological analysis.

Priority Recommendations

1. Increase the proportion of funds invested in resilience and adaptation to lower the cost of disaster response.
2. Make clear where responsibility lies in the NSW government for disaster response, disaster relief and resilience planning.
3. Continue to embed climate risks into sectoral decision making with embedded posts in Departments (e.g. Treasury, Health, Infrastructure etc.) to enable climate risks to be incorporated in regular decision making.
4. Bring in communities as genuine partners in the planning, preparation and execution of community resilience and adaptation strategies. Valuing community expertise, and, crucially, providing support to communities to build further expertise, enhance the capacity of locally-based resilience organisations, and the social side of social infrastructure.
5. Implement evidence-based heat solutions including shaded bus shelters, disaster payment for heatwaves, the HeatWatch application and fan first cooling across the State.
6. Implement the 'Social Asset Mapping Tool' developed by AECOM (with SEI guidance) for the NSW Reconstruction Authority in local councils and increase available funding for effective, efficient social infrastructure investment.
7. Replicate the inclusive and discursive process used by WSROC to develop the recommendations in the Heat Smart City Plan across the State.
8. Mandate and financially support the retrofit of old building stock, including social housing and rental properties.

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9. Develop annual tracking of consumer hardship related to electricity costs that extends the hardship tracking by the AER in ways that can identify whether underconsumption of electricity is increasing as electrification proceeds.
10. Develop a state-wide approach to community co-benefit processes, including community benefit agreements for the location of utility scale renewables, batteries, and transmission lines.

1. Climate change is happening now

1.1. What can you tell us about your experience of the impacts of climate change and how can the commission seek to reflect and respond to this in its work?

As a research institute SEI's focus is on research relating to the climate crisis, including the impacts of climate change, with expertise in adaptation, disaster response and resilience, and questions of justice and equity in such processes. In working with academics, community, industry and government, SEI's experience of the impacts of climate change and how the commission might seek to reflect and respond include:

a) Climate change means the increase in frequency and severity of specific large-scale events and disasters – fires, floods, heatwaves, coastal storms. But any substantive, coordinated, and efficient government response must recognise the impacts of climate change will also be complex, multifaceted and cumulative. The reality of climate change will be the multiple interacting impacts across different dimensions, including mental health, physical health, housing stock, and a range of economic impacts (including various livelihoods effected including agriculture, transport, tourism, energy, education, and more). Intersecting crises, hazards, disasters, and recovery will disrupt employment, community, and socio-ecological relationships – and will be constant. In other words, responses to climate change need to understand complexity, polycrisis, and turbulence and design governance responses fit for such complex problems.

b) Climate change means climate injustice. The impacts of the interrelated crises noted above are having, and will inevitably continue to have, highly uneven impacts. One example of many, is the urban/rural divide in access to resources, workforces, decision making and where disasters are more likely to compound and be unseen. Climate change is an inequality and vulnerability multiplier.

   SEI's work in this space, including previous adaptation planning and community engagement, has illustrated the need to focus not simply on generalised risks, but on specific vulnerabilities that threaten large parts of the population as well as vulnerable parts of the environment and other species. There needs to be a specific focus on the needs and perspectives of groups and communities who are being made more vulnerable by existing policies (housing policy and reforms, for example, making more people vulnerable to heatwaves). This means seeing climate adaptation as a multi-portfolio, multi-disciplinary issue that requires a whole-of-government response.

c) Communities that have experienced various climate impacts have critically important knowledges about vulnerabilities, impacts, and responses, which must be integrated in the design of disaster, resilience, and longer-term adaptation pathways. Community members know how their local rivers and forests behave during floods and fires. They know who is most vulnerable, where they live and what they need. SEI's research illustrates that community-based knowledge networks should be called on in response to

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disasters. The Commission should bring communities into planning and preparation, prioritise community expertise and agency, and, crucially, provide support to communities to build further expertise, locally-based resilience organisations, and the social side of social infrastructure. Moreover, on a practical level given the increasing scope and scale of disaster events, disaster adaptation and response will never be able to be met by government acting 'for' communities – but will require communities to work as active partners with government in the co-creation of resilience and adaptation strategies.

d) Climate change is broadly the result of a lack of attention to human impacts on the environment, and a dominant western philosophy that sees the environment solely as resource or waste receptacle. The commission can engage communities in thinking about a decentred approach to resilience, and rethinking the relationship between people, environment, other species and place as NSW adapts long term. A community-led, place sensitive approach can also begin to assist the state in designing governance structures for complex redesign of human and more than human settlement, posing and responding to key questions including:

i. What does place-based climate-resilient regional, urban and sub-urban design and development look like? What do its outcomes look like and what are the different kinds of processes that can create it?
ii. How do we rethink communities, including multispecies communities, in the context of climate change? And what capacities do those communities need to be powerful partners?
iii. What do we want to retreat to?
iv. How can nature-based solutions and biodiversity preservation help to build resilient and adaptive communities?
v. How can long-term adaptation planning and design be preventative and coordinated across multiple agencies and authorities: planning, development, building standards, environment, energy, transport, agriculture?

Recommendations

- We need responses to climate change that prepare communities for climate impacts, not only reactions to climate change emergencies.
- Responses to climate change need to understand complexity, polycrisis, and turbulence and design governance responses fit for such complex problems.
- A focus not simply on generalised risks, but on specific vulnerabilities that threaten large parts of the population will reduce injustices in climate impacts.
- Response should involve investment in and collaboration with communities, and the distinctive environmental and equity needs in advance of crisis. Communities as partners means providing investment in community capacity.
- Bring communities into planning and preparation, prioritise community expertise, and, crucially, provide support to communities to build further expertise, locally-based resilience organisations, and the social side of social infrastructure.
- Engage communities in exploring what forms of relationships and collaborative strategies are most appropriate and constructive for supporting NSW's long-term adaptation, the insights of which can guide the development of governance structures for the complex redesign of human settlement.

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2. Informing and empowering change

2.2. What actions can the commission take to engage across the community to help drive the shifts needed for the net zero transition and for effective climate change mitigation and adaptation?

Adaptation

On adaptation, as noted above, engaging community knowledges is crucial to building effective and efficient adaptation pathways. For both short-term resilience/adaptation measures, and for longer term pathways that may include 'planned retreat', community-based knowledges are extensive.

Five clear yet unfunded or unsupported examples of this, in relation to heatwaves:

a) On adaptation to increasing heat in Western Sydney, the NGO Sweltering Cities has been recommending the state provide simple shaded bus shelters to protect people using transport during hot days. This is a relatively inexpensive measure that would alleviate a major issue expressed by local residents that has not been funded.

b) Sweltering Cities has also been lobbying for a requirement for all rental units to have cooling capacity, along with heating. This has just passed in Victoria but must be replicated in NSW.

c) From our own research at SEI, we know that many households that do have air conditioning do not run it in heatwaves because of the cost of electricity. A promised disaster payment for heatwaves, similar to that available to households after fires or floods, would alleviate this fear and provide immediate relief.

d) The HeatWatch application, developed by the Heat and Health Research Centre and SEI, is an effective tool for public health communication that can help people determine the most effective and efficient cooling interventions they can use to keep themselves cool and safe while minimising their carbon footprint. This tool needs institutional support for communications and roll-out.

e) The "fan-first" cooling initiative is a low-cost yet very effective solution that can help drive the shift needed for the net zero transition and for effective climate change mitigation and adaptation. Our paper published in MJA advocates for using electric fans as indoor temperatures rise, delaying or reducing reliance on air conditioning (AC). This allows thermostats to be set higher (e.g., 27 °C instead of 23 °C), shortening or eliminating AC use without compromising comfort or physiological cooling. Fans consume as little as 3% of the energy used by air conditioners, making them a more affordable and accessible cooling option. They are inexpensive, require minimal maintenance, and can be easily relocated. Battery-equipped models can operate during power outages. Unlike air conditioning, which cools entire rooms regardless of occupancy or individual needs, fans provide targeted, adjustable airflow for personalised comfort. A cost-curve analysis assessing the emissions abatement potential of adopting a fan-first cooling strategy demonstrated a superior net benefit when compared to the switch from incandescent to LED home lighting.

More broadly, the 40 recommendations in the WSROC and Resilient Sydney led *Heat Smart City Plan* should be supported both regionally and statewide.

Social infrastructure

Our research has also illustrated the need for, and processes for identifying, increased social infrastructure. While the main emphasis in both the resilience literature and council spending is on

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physical social infrastructure (parks, libraries, community centres), there is opportunity to invest efficiently and effectively on the social side of social infrastructure (local social services, community organisations and networks generally, local resilience-focused community networks and organisations, sports and arts clubs, neighbourhood groups, environmental groups, health-focused groups, cultural and language organisations, First Nations organisations). Social infrastructure is a tangible resource that government can invest in to build community capacity and collaboration, providing the spaces required for enabling community resilience from the ground up.

For example, our research on the establishment and evolution of the Northern Rivers Community Resilience Alliance demonstrates efficiencies in connecting place-based community groups to enable peer support, sharing resources, achieving collective impact, attracting funding and understanding common needs across the region. Our recent paper in Women's Health outlines that many of these local initiatives are run by women and make significant contributions to the health, wellbeing and recovery of disaster affected communities, yet remain unrecognised in formal disaster reports and are under-funded[i].

Regional adaptation planning and planned retreat

Regional adaptation planning should engage communities not only in more immediate disaster and resilience planning, but also long-term adaptation pathway planning (including 'planned retreat'). Engage communities to identify the desired options to answer the question, 'planned retreat to what?'

Recommendations

- Engage community knowledges to build effective and efficient adaptation pathways.
- Implement evidence-based heat solutions including:
  - Shaded bus shelters to protect people using transport during hot days.
  - Disaster payment for heatwaves, similar to that available to households after fires or floods.
  - Promotion of and investment in the HeatWatch application as a tool to protect individuals during heat waves across the State.
  - Promotion of research on fan first cooling across the State.
- Develop and implement processes for identifying and increasing social infrastructure.
- Invest on the social side of social infrastructure (local social services, community organisations and networks etc.).
- Implement widespread use in local councils of the 'Social Asset Mapping Tool' developed by AECOM (with SEI guidance) for the NSW Reconstruction Authority and increase available funding for effective, efficient social infrastructure investment.
- Engage communities not only in more immediate disaster and resilience planning, but also long-term adaptation pathway planning (including 'planned retreat' e.g. identify the desired options to answer the question, 'planned retreat to what?').

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3. Accelerating emissions reductions

3.19. What additional measures could accelerate electrification and increase energy efficiency of new and existing buildings?

Research at SEI has revealed several strategies which could increase energy efficiency of new and existing buildings, while also addressing issues of environmental justice.

Fan-first cooling

The "fan-first" cooling mentioned in above, is designed to increase thermal comfort, keeping people safe, while significantly reducing people's energy consumption.

It is estimated that if a "Fan-First" cooling policy was adopted nationwide, the annual electricity demand from AC use across Australia would be reduced by 70%[ii]. These benefits would be attained without any changes to how cool or comfortable anyone feels. This significant reduction in the cost of cooling could ultimately bring an end to cooling poverty in Australia, or at the very least promote greater social equity by making thermal comfort and heat safety more accessible during the summer for lower-income households[iii]. Our study showed that raising the air conditioning thermostat from 24 to 26.5°C with supplementary air movement from desk and ceiling fans in an office, reduces the energy consumption by 32%, without compromising thermal comfort.

Increasing energy efficiency of existing buildings

Australia has a large stock of inefficient buildings. While measures such as raising NATHERS requirements for new builds (now minimum 7 stars) are a viable way to increase the energy efficiency of new building stock, old building stock will not be improved without retrofit. At present, there are very few financial supports for retrofit measures to improve energy efficiency, and many of these are targeted at social housing. There is generally an absence of mandates that would require energy efficient retrofits, although some states/territories (e.g., ACT) have recently introduced minimum energy efficiency standards for rental properties. Stronger financial supports and mandated requirements for energy efficiency improvements in older building stock could improve energy efficiency.

Rental properties face particular challenges in energy efficiency improvements; most landlords do not upgrade their properties, and when they do it is in response to a combination of financial incentives and tenants' needs[iv]. Moreover, most renters do not have easy access to solar, storage batteries, EV charging points or easy access to other renewable sources of energy. Mandatory minimum energy standards, when combined with mechanisms to soften the financial impact, may be viable from the perspective of landlords as well as supported by renters[v].

Recommendations

- Promote the fan-first cooling method in homes, offices and beyond.
- Mandate and financially support the retrofit of old building stock, including social housing and rental properties.

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3.20. How could social equity be better addressed in the transition to an electrified built environment?

Electrification and electricity rates

An electrified built environment is necessary to reduce GHG emissions but it means that increases in electricity costs will be felt more acutely by households . The current smart meter rollout in the National Electricity Market (NEM) is paving the way to more dynamic forms of electricity charging, such as time-varying rates. These are useful in supporting demand-side response, but there is a risk that household electricity bills will be adversely impacted. Research in Australia has shown that household responses to time-of-use rates vary as a function of home energy efficiency[vi]. US research has found that older adults and those with disabilities face disproportionately large cost increases from the introduction of time-of-use rates[vii].

The implication is that electrification should proceed with sensitivity to new potential risks of energy inequity that may be exacerbated by greater reliance on electricity to meet all energy needs. The Australian Energy Regulator (AER) tracks hardship as a function of bill arrears, but Australian research has also emphasised that many households under-consume energy to the point of privation in an effort to manage costs[viii]. Our recommendation is thus to develop annual tracking of consumer hardship related to electricity costs that extends the hardship tracking by the AER in ways that can identify whether underconsumption of electricity is increasing as electrification proceeds. This tracking will be important to identify emerging new areas of energy inequity, and to provide support to affected communities.

Electrification and technology access

Transition to an electrified built environment gives households more opportunities to take control of their energy use, including generating and selling their own electricity as 'prosumers'. However, not all households have equal opportunities in this respect. Most rental properties do not have solar, and landlords are often reluctant to install solar as they see the return on investment to be a barrier[ix]. Home batteries can help optimise costs for households on time-varying electricity rates, but these will likewise be challenging for renters to access.

Having rooftop solar can help reduce energy hardship[x], but upfront costs and challenges to apartments and renters in installing solar could exacerbate inequities between groups.

Consideration of these inequities and barriers should be considered in any home-electrification policies and subsidies. Solutions such as community batteries that collectivise renewable energy for a locality and make it less dependent on home ownership, are one example of a solution to this challenge.

Inequalities in energy transition

A state-wide approach to community co-benefit processes and agreements for the location of utility scale renewables, batteries, and transmission lines would address inequalities in energy transition. In research conducted by SEI, communities who have experienced such developments have specifically noted the inequity of the transition, where some community members or outside organisations gain benefit and others do not. Research has also identified that the process for determining benefits is critical in shaping whether the benefits are seen as creating community consent or seen as a "bribe" or form of coercion[xixii]. Community benefit and the process of engagement in the building of new community infrastructure need to be linked if they are to achieve the objective of creating consent to renewable infrastructure.

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Such built-in inequity in energy transition leads to a decline in trust in, and legitimacy of, government generally, and energy transition specifically. A focus on equity is not only about equitable distribution of benefits, but of community recognition of governmental and policy legitimacy which requires engagement in the process of decision making as well as benefit from the substantive infrastructure.

Moreover, effective engagement policies are likely to identify community issues that go beyond the scope of energy related benefits (i.e. benefits associated with discounted electricity prices once the infrastructure has been built). A state-wide approach to community co-benefit needs to also enable mechanisms for different portfolios, along with industry, to play a role in responding to community needs that are identified in community benefit processes. There is precedent for this kind of multi-portfolio approach to policy development in Aboriginal Affairs and its partnerships with NSW Premiers' Department. Similar strategies should be explored for community benefits more broadly.

In addition, the success or weakness of community co-benefit processes are dependent on the capacity of the communities that participate in them. Initiating consultation processes that do not actively seek and support broad-based community involvement face the risk of playing to and exacerbating already existing polarisations in community. For community co-benefit to be effective, government investment and support in community capacity building, similar to what we outline for adaptation, will be required.

Recommendations

- Electrification should proceed with sensitivity to new potential risks of energy inequity that may be exacerbated by greater reliance on electricity to meet all energy needs.
- Develop annual tracking of consumer hardship related to electricity costs that extends the hardship tracking by the AER in ways that can identify whether underconsumption of electricity is increasing as electrification proceeds.
- Consider inequities and barriers to access in any home-electrification policies and subsidies.
- Develop a state-wide approach to community co-benefit agreements for the location of utility scale renewables, batteries, and transmission lines. Such an approach must focus on the process of community engagement as well as diverse kinds of benefit, and will require active government support.

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4. Adapting to climate change

4.23. The adaptation objective is for NSW to be more resilient to a changing climate. The Act allows for regulations to further define the adaptation objective. What does a more resilient NSW look like to you?

Regulatory frameworks

There is currently a complex interplay of regulatory frameworks for adaptation in NSW. One key recommendation here is to make much more clear where responsibility lies in the NSW government, given the competing and complex regulatory environment around resilience and adaptation to climate change. AdaptNSW and the NSW Reconstruction Authority have regulatory responsibility, as well as the Net Zero Commission. Clarity about the differences, and different regulatory frameworks for, disaster response, disaster relief, resilience planning, and longer-term adaptation planning is needed. Regulations can also encourage collaborations across sectors such as joint planning and drills between infrastructure operators and communities.

Budgeting

Currently, NSW overwhelmingly focuses budget resources on disaster response, but more and better investment in resilience and adaptation would lower the costs of increasing disasters being predicted across the state. Simply put, a more resilient (and economically rational) NSW would invest significantly more in resilience and adaptation measures.

One example that commonly emerges through SEI's research is disaster response agencies being bolstered with more funding for emergency equipment after large scale disasters and flood/bush fire inquiries. But addressing disasters is much more than high tech equipment - in fact, the emergency phase is incredibly short lived.

In the years after disaster recovery support services are established and funded, they are stood down with all of the capacity and coordination platforms within local governments and local organisations dissipated because of a lack of ongoing funding for disaster resilience.

Councils and local organisations don't have ongoing funding to continue to do longer term recovery and resilience work and to maintain and coordinate relationships with community groups. We know that maintaining these relationships and networks is essential for inter-sectoral and inter-stakeholder coordination when disasters hit. Local Councils have a critical role to play in undertaking this essential, place-based work in the ongoing coordination of community resilience networks and require state funding to do so. These networks enable ongoing platforms for preparedness, response, recovery and resilience building across government, NGOs, and local community groups in place.

Community engagement

Based on a decade of research at SEI on resilience, in partnership with a number of local and state government agencies and initiatives, our main response to is that resilience efforts must be inclusive, equitable, and just and engage communities as agents of change. Efficient and effective resilience initiatives focus on policies that undo the vulnerability of parts of the population.

Vulnerability is not an inherent quality of people, communities or aspects of the environment; it is something that is created and exacerbated by policy. As such, policy can undo vulnerability with attention to the creation of inequitable exposure to risks. Mandated cooling in all rental units, and simple subsidies for housing retrofits – insulation, shading, solar and aircon – can relieve

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vulnerability to heat, for example. Moreover, vulnerability is not only about material vulnerability but about the sense of agency and power a community believes it has. Engagement strategies that work "with" not "to" or "for" communities can increase people's sense of agency, which can enhance communities' capacity to be a partner in adaptation strategies long-term.

Recommendations

- Make clear where responsibility lies in the NSW government for disaster response, disaster relief and resilience planning.
- Invest additional funds in resilience and adaptation to lower the impact of disasters and the cost of disaster response.
- Make resilience efforts, including policy, inclusive, equitable, and just by focusing on undoing the vulnerability of parts of the population, and build community capacity at the same time

4.24 What additional information and evidence should the commission consider when assessing progress towards the adaptation objective?

Adaptation is not simply about achieving a fixed outcome, but about building a perpetual and sustained capacity to respond to an increasingly unpredictable climate. It means that adaptation must attend to the processes that it uses alongside the specific outcomes it achieves at any given point. Progress towards an adaptation objective would require community-based long-term, adaptation pathway planning across the state, and meaningful funding.

The commission should continue to embed climate risks into sectoral decision making with embedded posts in Departments (e.g. Treasury, Health etc.) to enable climate risks to be incorporated in regular decision making. If 'business as usual' decisions don't adequately consider climate change and disaster risks, the outcomes of these decisions can perpetuate a vicious cycle of exacerbating disaster impacts and demands on emergency services and communities.

The Commission should implement the Reconstruction Authority's Disaster Adaptation Plans (DAP) process, adding the required funding for implementation, but not just for short-term disaster and resilience thinking, but to engage communities in long-term visioning and resourcing of what climate-adapted human settlements look like in the future. This is in addition to shorter term disaster and resilience planning. We know that whole communities will have to move, though we have avoided a substantive set of discussions about planned retreat. While there is hesitance to talk about retreat from existing settlements, this can be addressed with a focus on the question of 'retreat to what' in the longer term. Using community knowledge, experience, and desire to design such future developments will help overcome the barriers to engaging in these important conversations.

Recommendations

- Continue to embed climate risks into sectoral decision making with embedded posts in Departments (e.g. Treasury, Health etc.) to enable climate risks to be incorporated in regular decision making.
- Measure and evaluate adaptation policies in terms of how their processes build community and government capacity, as well as specific outcomes.
- Implement the Reconstruction Authority's Disaster Adaptation Plans (DAPs) process to engage communities in long-term visioning of what climate-adapted human settlements look like in the future, in addition to shorter term disaster and resilience planning.

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- Facilitate a substantive set of discussions around planned retreat, centring community knowledge, experience and desire.

4.27. What initiatives should the commission consider in assessing NSW's preparation and responses to extreme heat and humidity events in NSW?

SEI's research has delivered a range of empirical tools and approaches for the commission's consideration:

a) The Heat Smart City Plan developed collaboratively with the Western Sydney Regional Organisation of Councils (WSROC), Resilient Sydney, and numerous state, local, and community-based representatives, offers a very clear set of 40 well-developed and substantive recommendations that the state should fund and support. That work is done and ready to implement.

b) While many of the recommendations of the plan could be implemented statewide, the inclusive and discursive process used by WSROC to develop the recommendations should be replicated in multiple areas. This would ensure that local knowledge and experience, along with local governments, utilities, health services, and community organisations, would be involved in planning and implementation.

c) The state could also specifically support further health and community-based research into the impacts of heatwaves on communities that are most vulnerable, in order to provide evidence for further recommendations and responses. This work could be done collaboratively across NSW-based universities.

Recommendations

- Review and support implementation of the 40 recommendations of the Heat Smart City Plan (WSROC and Resilient Sydney).
- Replicate the inclusive and discursive process used by WSROC to develop the recommendations in the Heat Smart City Plan across the State.
- Support further health and community-based research into the impacts of heatwaves on communities that are most vulnerable, in order to provide evidence for further recommendations and responses.

We trust that our submission and recommendations assist the NSW State Government, and we remain available for further consultation where required.

Yours sincerely,

[redacted]

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Appendix & Endnotes

This submission draws on research conducted by SEI researchers in collaboration with community organisations and individuals through various projects including:

- The *Self-Organising Systems to Minimise Future Disaster Risk* project, conducted in partnership with the University Centre for Rural Health (UCRH) in Lismore, which investigated how disaster-affected communities across New South Wales self-organised before, during and after recent disaster events. This project was funded under the joint Australian Government – NSW Government National Partnership on Disaster Risk Reduction. Read the findings report here (April 2024).

- The *Just Transition* project, funded by the British Academy's Just Transitions to Decarbonisation in the Asia-Pacific programme, which examined how a 'just transition' was being defined in Australia, explored the key challenges to achieving it, and sets out a new, broader approach to just transition which will help shape global efforts to justly achieve the climate action that is urgently needed. Read the findings report here (2022).

- SEI's field defining and award-winning work on Environmental and Multispecies Justices. Read more about our research and projects here, including *Negotiating community benefits in the climate transition*.

- The *Developing Systems and Capacities to Protect Animals in Catastrophic Fires* project, conducted in partnership with the Shoalhaven City Council, investigated how community members in the Shoalhaven region acted before, during and after the 2019/2020 bushfires to care for domesticated, wild, and farmed animals. This project was funded by the Australian Commonwealth Government through the Bushfire Recovery Grant from the Department of Industry, Science, Energy and Resources. Read the findings report here (November 2024).

- The *Community Risk Assessment* project, funded by Natural Hazards Research Australia and in close collaboration with NSW-SES, suggested integration of top-down and bottom-up approaches in the development of community risk assessment. The research improved the knowledge base of community risk assessment approaches by considering social and physical dimensions of local community vulnerabilities to disasters and encourages allocating funds for integration of community and agency risk knowledge. Read the findings report here (August 2024).

- The *Mapping Climate Disaster Response Networks* project, funded by SEI's Collaborative Grants Scheme and conducted in partnership with UCRH, investigated the evolution of the

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relationships between formal disaster management agencies and informal community groups prior to, during and after the catastrophic Northern Rivers floods and landslides of February/March 2022. The findings are under review to be released in 2025.

- A study by Bailie et al. (2024) explored the prosocial behaviour of medical students during and after weather-related disasters, focusing on their willingness to volunteer and the psychological impacts of such activities. The study found that while students often self-organised to volunteer despite personal distress, their efforts were largely independent of university objectives and sometimes led to ongoing psychological impacts, including distress and survivor's guilt. The study recommends that educational institutions provide structured support, including psychological debriefing, and ensure volunteering remains a voluntary and well-supported activity.

- A study by McNaught et al. (2025) demonstrated that following the 2022 floods, women have made significant and enduring local contributions to the health, well-being and recovery of communities across the Northern Rivers, NSW region. Despite challenges in accessing power and decision-making, women played an essential role in community problem solving and circumnavigated challenges using collaborative local approaches. This study reveals that after disasters, masculinised emergency services related labour benefits from support and recognition while the prolonged grass roots work of women to support the health and well-being of their communities persists without these privileges. Our research points to the need for further deliberate recognition of the agency of women in disaster recovery and preparedness and how women can be supported in these roles to enable not only the ongoing health and well-being of disaster-affected communities, but also of women organisers themselves.

- The University of Sydney's University Centre for Rural Health based in Lismore, NSW is currently supporting the documentation and learning of the Northern Rivers Community Resilience Alliance through a Sydney Environment Institute Collaborative Grant and the Healthy Environment's and Lives Network Innovation Fund.

- Dr. Rebecca McNaught's PhD focused on local level collaborative governance of climate change and disasters in the aftermath of the catastrophic Northern Rivers floods in 2022. Her research draws upon interviews across government, NGO, community leader and business practitioners and NSW Government flood inquiry hearing transcripts. Read the findings of her Northern Rivers case study here.

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