

**Submission
No 70**

**INQUIRY INTO PLANNING SYSTEM AND THE IMPACTS
OF CLIMATE CHANGE ON THE ENVIRONMENT AND
COMMUNITIES**

Organisation: Lock the Gate Alliance

Date Received: 3 November 2023

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Submission: Inquiry into how the planning system can best ensure that people and the natural and built environment are protected from climate change impacts and changing landscapes

Thank you for the opportunity to submit to this planning and climate change inquiry. This inquiry is timely and necessary and we are grateful to the Committee for initiating it.

Lock the Gate Alliance is a network of over 120,000 farmers, Traditional Owners, conservationists and community members from across Australia, affected by and concerned about the impacts of coal and unconventional gas mining. We live and work in the communities affected by these industries and undertake research, advocacy and support to protect the environment, cultural heritage and society from damage. Many of our members are regionally-based, and are also experiencing first-hand the consequences of the global warming that has already occurred.

In New South Wales, Lock the Gate's members live in regions that are affected by coal mining and gas extraction, and by the consequences of climate change. The planning system has not been serving these communities well and broad and deep changes are needed to best ensure that people and the natural and built environment are protected from climate change impacts and changing landscapes.

This submission focusses on aspects of the terms of references that are particular to Lock the Gate's mission, experience and purpose. Specifically,

- Developments proposed or approved in areas that have become more exposed to natural disasters as a result of climate change and that harbour threatened ecological communities or habitat for threatened species;
- The adequacy of planning powers and planning bodies, particularly for local councils, to review, amend or revoke development approvals, and consider the costs, that are identified as placing people or the environment at risk as a consequence of:
 - the cumulative impacts of development,
 - climate change and natural disasters, biodiversity loss, and
 - rapidly changing social, economic and environmental circumstances.

Accordingly, our submission focusses on the cumulative climate change, biodiversity, water and social impact of major coal mining and gas developments in the Hunter region and North West and on the social and economic imperative for diversification and devolution of planning controls to local communities.

However, our remarks about the planning system's failure to consider and build for resilience and dramatically changing climatic conditions in the context of mining projects applies equally to major housing developments and community infrastructure.

Recommendations

1. That NSW abandon the 2020 “Strategic Statement on Coal” and 2021 “Strategic Statement on Gas” and instead develop overarching climate change, energy and industry policy that guides the planning system and the private sector to make the state resilient to dramatic changes in the environment, society and economy that are underway as a result of climate change.
2. That the *NSW Net Zero Plan, Climate Change Policy Framework* and all other climate change laws and policies be updated to ensure that decisions made by consent authorities under the *Environmental Planning and Assessment Act 1979* are made consistent with NSW’s twin goals of decarbonisation and resilience to the impacts of climate change.
3. That the *Environmental Planning and Assessment Act 1979* be amended such that
 - a. Local communities are granted genuine agency and control in planning decisions that affect their lives, including the location and manner of development of State Significant Development and infrastructure projects;
 - b. Climate change mitigation and adaptation are made a mandatory consideration for all development consent determinations and consent cannot be granted to development that is
 - i. not consistent with New South Wales’ obligation to reduce greenhouse gas emissions;
 - ii. not resilient to the impacts of climate change.
 - c. All remaining habitat for threatened species and ecological communities are protected from development unless in genuinely exceptional circumstances;
 - d. Projects with a significant impact on the environment and local community values have third party merits appeal rights reinstated;
 - e. Concurrence powers are created for the Minister for the Environment, as recommended by the Henry Review.
4. That NSW establish a long-term environmental rehabilitation fund along the lines recommended by the Chief Scientist in 2014¹ and the NSW Audit Office in 2017² to ensure there is adequate resourcing available to restore landscape resilience to the impacts of climate change.
5. That promised further action to improve air quality and protect water resources from the impacts of mining operations be implemented.
6. That a long-term fund be established for adaptation and resilience underpinned by a statutory adaptation framework that prioritises community-based climate change adaptation capacity

¹ NSW Chief Scientist CSG inquiry

<https://www.chiefscientist.nsw.gov.au/news/chief-scientist-and-engineer-calls-for-tougher-insurance-regime-for-cs-g-industry>

² Audit Office review NSW Mining Rehabilitation Security Deposits.

<https://www.audit.nsw.gov.au/our-work/reports/mining-rehabilitation-security-deposits>

building - giving agency to local communities to connect with each other, research institutions and government agencies to implement community-based adaptation.

7. Amend Environment Protection Licences for coal and gas projects to list methane and carbon dioxide as pollutants and set binding and rapidly declining limits on emissions, with a view to have controls in place on all projects by 30 June 2024.

Policy frameworks in need of alignment

“Strategic Statement on Coal” and “Future of Gas”

In June 2020, the NSW Government created a “Strategic Statement on Coal” by which it meant to guide planning decisions about new and expanding coal mining developments. Despite this statement having no statutory basis, it has in the years since underpinned the approach taken by the Department of Planning in the evaluation of coal mining projects under the Environmental Planning and Assessment Act 1979.

The Assessment Report prepared by the Department for the Maxwell Underground coal mine – a new coal project approved that year is illustrative of the use to which this position paper has been put. It is cited in the “Strategic context” section of the Assessment Report:

In June 2020, the NSW Government released its Strategic Statement on Coal Exploration and Mining in NSW. The Statement recognises that while many countries are beginning to transition from fossil fuels to low carbon energy sources, the demand for thermal coal in Asian markets is likely to remain stable until at least 2040.

There are myriad such examples. The Strategic Statement on Coal was cited by former Commonwealth Environment Minister Sussan Ley in her September 2021 statement of reasons for approving the Vickery coal mine extension project, a new mine which had been bitterly opposed by the local community. At paragraph 189 Ley states: “Although recognising that emissions reduction measures will be required, the statement notes that ending or reducing NSW thermal coal exports while there is still strong global demand for coal is likely to have little to no impact on global carbon emissions.”

More recently, the Department’s Assessment Report for the Mount Pleasant Optimisation Project in 2022 cited the Strategic Statement on Coal after discussing the broader climate change commitments of the Australian Government, noting that “Despite this global trend for reduced reliance on fossil fuels, coal mining for export from NSW is expected to continue to have an important role to play in the short to medium term, as coal currently remains a critical energy source all over the world.” This citation includes reference to the need for communities dependent on coal mining to diversify their economies

Similarly, the Scoping Report submitted by Yancoal for a significant expansion of its Moolarben Coal mine, highlights that “*the Strategic Statement on Coal Exploration and Mining in NSW (NSW Government, 2020) recognises the value of coal production to the NSW economy, including:*

- *Existing industry investment and extension of the life of existing operations (rather than development of greenfield operations).*

- *The long history of coal mining in NSW, and its close ties with local communities.*
- *The potential for coal production to deliver significant economic benefits to local communities, including jobs and investment.*
- *Coal production's significant contribution to export earnings as the State's biggest single export earner.*

In contrast, climate change is not mentioned as part of the “Strategic context” for this project, and the *NSW Climate Change Policy Framework*, adopted in 2016 following the adoption of the Paris Climate Agreement, is merely listed as one of a number of documents that “will be considered in preparation of the EIS” for the project.

The Climate Risk Group is a group of companies committed to quantifying and communicating the costs of climate change. They made a [submission](#) to the NSW parliamentary inquiry into Climate Change (Net Zero Future) Bill 2023. Their submission underscores the fact that we simply cannot afford additional emissions from new coal-mine expansions. Their analysis found that - due to increasing risks from floods, coastal inundation and bushfires - NSW is one of the most vulnerable states in the world to the impacts of climate change. In their index, our state ranks in the top 5% of states at highest risk, globally.

We note, too, that despite declaration in the Strategic Statement on Coal that it “seeks to reduce the impacts of mining on regional communities” by supporting improved management of impacts on air quality and water resources, new measures for these have not been implemented since its inception. Rather, it has repeatedly been used as a rhetorical tool to promote and allow the further expansion of coal mining in the Hunter and Namoi regions, limiting and inhibiting those regions from diversifying their economies and protecting environmental conditions that will be critical to their ability to adapt to the impacts of climate change.

The *Future of Gas statement* was adopted in 2020 and although it greatly reduced the area of New South Wales available for coal seam gas exploitation, it is already severely dated in its failure to set New South Wales on a path to decarbonisation. It claims, for example, that “Supporting domestic users of gas will require further investments in gas related infrastructure, including import terminals, pipelines...” but enabling investment in such infrastructure at this time would sink capital into facilities with extremely short lifetimes, thereby locking diminishing users into exorbitant prices to pay back the cost of this infrastructure.

Future of Gas also claimed that the Narrabri Gas Project is “critical” to “support supply security”. It’s not. The [August 2023 energy review](#) commissioned by the NSW Minister for Energy and Climate Change found that while “[t]here were differing views about whether gas supply for NSW would be problematic ... few believed Narrabri could address forecast shortfalls in the required time.”

NSW currently consumes ~115 PJ of gas per annum. If we implemented gas demand reduction measures identified in Northmore Gordon’s independent [NSW Gas Demand Analysis Report](#), we could reduce gas demand by 25% to ~86 PJ by 2028. By 2033 (10 years from now) we could reduce demand for gas in NSW by 70% to ~35 PJ of gas. 35 PJ of demand for gas in NSW represents less than 2% of east coast gas supply at present. Squadron Energy’s Port Kembla Import Terminal will be operational by 2025/26 and capable of supplying up to 130 PJ per annum.

The *Future of Gas* statement is effectively redundant in light of the government’s commitment to develop a Gas Roadmap, which [Minister for Energy Penny Sharpe says](#) “will provide clarity to industry and households on gas decarbonisation, including supporting business and household electrification and energy bill reduction.”

Decarbonisation must involve early planning to phase out gas demand to avoiding locking in high capital cost infrastructure like the Hunter Gas Pipeline, which would service a diminishing number of customers at increasing cost. It was a missed opportunity to create a framework that provided the investment signal and government policy support necessary to accelerate fuel switching by industry and manage down New South Wales’ reliance on gas.

The International Energy Agency’s *Net Zero Roadmap* outlines very clearly what a scenario consistent with this goal entails and the necessary actions to achieve it:

Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our pathway, and no new coal mines or mine extensions are required. The unwavering policy focus on climate change in the net zero pathway results in a sharp decline in fossil fuel demand, meaning that the focus for oil and gas producers switches entirely to output – and emissions reductions – from the operation of existing assets.

Further, the IEA’s 2023 *World Energy Outlook* clarified that clean energy investment is accelerating and observed that, “Until this year, meeting projected demand in the STEPS implied an increase in oil and gas investment over the course of this decade, but a stronger clean energy outlook and lower projected fossil fuel demand means this is no longer the case. However, investment in oil and gas today is almost double the level required in the NZE Scenario in 2030, signaling a clear risk of protracted fossil fuel use that would put the 1.5 °C goal out of reach.”³

Achieving net zero and keeping the 1.5 degrees limit to global warming within reach requires “unwavering policy focus” and this is currently lacking in Australia and New South Wales. New South Wales needs a strategy to phase out gas use in line with falling production of existing gasfields and to ensure that the phase out of coal exports is orderly, just and provides for ongoing environmental restoration and management of post-mining landscapes.

Environmental Planning and Assessment Act in climate mitigation and adaptation

The 2016 *Climate Change Policy Framework* established some important foundations for NSW’s responses to climate change and the need to reduce emissions and build resilience, but it is badly in need of updating. It makes no mention of the *Environmental Planning and Assessment Act* and its subsidiary instruments, which leaves a considerable hole in the state’s ability to achieve the twin goals of decarbonisation by 2050 and resilience to the impacts of climate change. The Framework promises “The NSW Government will investigate how to embed consideration of climate change mitigation and adaptation across government operations including service delivery, infrastructure, purchasing decisions and regulatory frameworks” but seven years later, this “embedding” has not occurred and the result is putting NSW communities at worsening risk from the impacts of climate change, sending mixed signals to investors and companies and locking in dangerous greenhouse gas emissions.

³ IEA *WEO 2023*. Executive Summary. <https://www.iea.org/reports/world-energy-outlook-2023/executive-summary>

Similarly, the Net Zero Plan needs to be updated to clarify that the state's emissions reduction targets are relevant considerations for decisions made under the *Environmental Planning and Assessment Act*. The 2021 update on the Net Zero Plan expressly excluded consent authorities from consideration of the plan's objectives, fatally undermining confidence in the plan and the government's commitment to pursuing it. The Update specified that, "NSW Government policy is that the NSW Government's objective set out in this Plan, to reduce emissions by 50% below 2005 levels by 2030, is not to be considered in the assessment or determination of development and infrastructure applications under the *Environmental Planning and Assessment Act 1979*." This "policy" was not mentioned in the Net Zero Plan itself, nor in the 2022 update, so there is an urgent need for clarification from the Government that all decision making about planning, infrastructure, land and water management will be informed by, responsive to and made consistent with the urgent twin priorities of decarbonisation and adaptation.

As we write this submission, an inquiry is underway into the *Climate Change (Net Zero Future) Bill 2023*, which has again failed to ensure that NSW's climate change goals are embedded into the Environmental Planning and Assessment Act in particular, and government decision-making broadly. Unless this is rectified, NSW will fail to respond effectively and in a timely fashion to the threats of climate change and it will be mining and regional communities that pay the price.

The regulatory regime is failing to abate GHG emissions at operating coal mines

Section 4.17 of the EP & A Act provides the power to impose a condition on a development. All coal mines in NSW are - in theory - conditioned to require the implementation of all 'reasonable and feasible' measures to minimise the release of greenhouse gas emissions from coal mining. In practice however, these conditions are vague, generally unenforceable and ineffective.

There is a great deal of evidence that the current regulatory regime is failing to abate emissions at coal mines:

- In at least one case - Hunter Valley Operations - abatement measures simply do not exist. Lock the Gate research published in the Newcastle Herald in July of this year - [Hunter Valley Operations coal mine had no greenhouse gas conditions listed in abatement strategy](#) found that one of the largest open cut coal mines in NSW has been operating for years without being required to implement *any* abatement actions at all. Unsurprisingly, emissions at this mine increased by 3% in 2021-22.
- Lock the Gate analysis of data published by the Clean Energy Regulator in Canberra found that in 2021-22, Scope 1 GHG pollution (primarily methane and diesel emissions) increased at 8 of the 10 most polluting coal mines in NSW. A brief analysis of this - mine by mine - is available to the Committee on request.

Monitoring, measuring and reducing energy sector methane emissions

Rapid methane cuts from the energy sector are crucial to avoid climate tipping points. A [new report](#) from the IEA finds that rapid cuts in methane emissions from fossil fuels – alongside deep cuts in carbon dioxide (CO₂) emissions – are essential to achieve global climate targets.

The IEA says that a 75% reduction by 2030 is required, and notes that: “[t]argeted actions to tackle methane emissions from fossil fuel production and use are essential to limit the risk of crossing irreversible climate tipping points.” In this context, we note that 95% of fugitive emissions in NSW are attributable to coal mining and that the bulk of these emissions are methane. This is the only sector projected to grow from 2020 - 2030. Projections on the NSW Net Zero Emissions Dashboard predict that from 2029, fugitive emissions will be a bigger GHG problem here in NSW than emissions from our entire electricity generation sector.

Cumulative impacts

The Committee is asked to inquiry into the “adequacy of planning powers and planning bodies, particularly for local councils, to review, amend or revoke development approvals, and consider the costs, that are identified as placing people or the environment at risk as a consequence of:

- the cumulative impacts of development,
- climate change and natural disasters, biodiversity loss, and
- rapidly changing social, economic and environmental circumstances.”

In our experience of the State Significant Development provisions of the *Environmental Planning and Assessment Act 1979*, there is no provision to review, amend or revoke development approvals that are identified as placing people and the environment at risk from cumulative impacts.

New South Wales’ largest contribution to climate change is our coal export industry, the cumulative impacts of which are substantial, as we outline in further detail below. Once a development consent is granted, there is no proactive mechanism for that consent to be amended if it becomes clear that the impacts of the development are greater than anticipated, or if the environmental circumstances of it are so altered that previously acceptable impacts, such as habitat loss, water loss or greenhouse gas emissions become unacceptable.

We provide below some examples of the cumulative impacts of coal mining development consents granted since 2010 and since the adoption of the Paris Climate Agreement. There is no public agency that is keeping track of these cumulative impacts, and the information below has been compiled by Lock the Gate from our experience in the environmental assessments of these projects.

Climate change

Since the Paris Agreement entered into force in November 2016, 25 new or expanded coal mining projects have been approved under the NSW Environmental Planning and Assessment Act, and one major coal seam gas project. In other words, on average, a new or expanded coal mining project has been approved by the NSW Government every quarter since its own Climate Change Policy Framework, endorsing the Paris Agreement, was adopted.

Table 1: Lifetime greenhouse gas emissions of coal mining projects approved in NSW since November 2016

Project/mine name	Date approved	Direct GHG (Mt CO_{2e})	Downstream GHG (Mt CO_{2e})	Total GHGs (Mt CO_{2e})	Additional ROM coal (Mt)
Mount Pleasant Optimisation Project	Sep-22	13.90	860.2	876.2	247

<i>Wongawilli Coal Mine - MOD 2</i>	Apr-22	0.21	7.5	7.8	2.43
<i>Narrabri Underground Stage 3</i>	Apr-22	31.19	455.6	479.6	82
<i>Dartbrook Coal Mine MOD 7</i>	Dec-21	1.10	113.8	115.4	37.4
<i>Mangoola Coal Continued Operations</i>	Apr-21	3.25	104.3	107.9	52
<i>Tahmoor South</i>	Apr-21	19.31	65.8	86.4	33
<i>Maxwell Underground Project</i>	Dec-20	9.90	326.0	337.0	148
<i>Russell Vale Underground Expansion Project</i>	Dec-20	1.40	9.6	11.1	3.7
<i>Vickery Extension Project (new mine)</i>	Aug-20	3.10	366.0	369.9	33
<i>Bulga Coal MOD 3 and MOD 7</i>	Jul-20	4.26	109.7	114.4	63
<i>Glendell Coal Mine MOD 4</i>	Mar-20	0.10	3.9	4.1	1.97
<i>Rix's Creek South Continuation</i>	Oct-19	0.80	71.5	72.5	25
<i>United Wambo Open Cut Coal Mine</i>	Aug-19	5.80	259.3	265.9	150
<i>Ulan Coal MOD 4</i>	Jul-19	0.03	16.0	16.1	6.4
<i>Moolarben Stage1 Mod 14 Stage 2 Mod 3</i>	Jun-19	0.46	131.4	132.1	54
<i>Rix's Creek South Coal Project MOD 10</i>	Jun-19	0.03	2.9	3.0	1.9
<i>Integra Underground Mine MOD 8</i>	Apr-18	3.87	27.3	31.3	9.9
<i>Hunter Valley Operations South MOD 5</i>	Feb-18	6.94	502.5	511.1	56.8
<i>Invincible Coal Mine Southern Extension MOD 5</i>	Feb-18	0.18	6.5	6.7	2.7
<i>Wallarah 2 Coal project*</i>	Jan-18	1.66	360.9	364.0	125
<i>Wambo Mine MOD 17</i>	Dec-17	0.93	26.6	27.5	18
<i>Wilpinjong extension</i>	Apr-17	1.97	346.3	348.6	112
<i>Springvale Mine Extension MOD 1</i>	Apr-17	0.05	28.0	29.1	11.5
<i>Airly Mine Extension Project</i>	Dec-16	0.21	8.6	9.0	36
Totals		110.7	4,210.2	4,326.5	1,312.7

The cumulative downstream emissions made possible by the development consents granted to these projects is 4.3 gigatonnes of carbon dioxide equivalent. This is more than 10% of the total global carbon budget (420Gt) estimated by the IPCC as allowing a likely chance of keeping global average temperature rise below 1.5 degrees.⁴

Biodiversity

Since 2010, we estimate that at least 15,000 hectares of native vegetation has been approved for clearing for major mining projects in New South Wales, and that at least half of this area was vegetation communities that were at the time, or have since been, listed as critically endangered nationally. Almost all of the bush in the lowlands of the Hunter Valley is one of four nationally critically endangered woodland communities. They're critically endangered because so much of their original extent has been cleared, and so little of what remains is safe from further clearing. In the last thirteen years, thousands of hectares of native woodland in the Hunter Valley has been approved for clearing by coal mines. Much

⁴ There is considerable variation in carbon budget estimates. The IPCC's Special Report on 1.5 Degrees in 2018 estimated a 420Gt cumulative emissions budget gave a 66% chance of remaining below 1.5 degrees warming. See here <https://www.ipcc.ch/sr15/>

the remaining vegetation is part of a forest community called Central Hunter Valley Eucalypt Forest and Woodland. The advice prepared by the scientific committee that led to this forest being listed as critically endangered in 2016 warned that it would be extinct in 40–60 years if we don’t stop clearing it. Wildlife that use these forests, such as flying foxes and threatened woodland birds, are also at risk of regional extinction – they may vanish from the Hunter altogether.

In 2006, it was estimated that there was 37,000 hectares of this forest community left in existence.⁵ As shown in Table 2, we estimate that clearing approved for mining projects since that time represents more than 5% of that extent, a substantial loss given that much of the remaining extent is scattered in small patches and all remaining patches in moderate to good condition are considered critical to its survival.⁶

Similarly, many mining projects have been approved to clear the nationally critically endangered Grassy Whitebox Woodland. The National Recovery Plan for that community states that “*all areas of Box-Gum Grassy which meet the minimum condition criteria outlined in Section 3 [of the plan] should be considered critical to the survival of this ecological community.*”

Table 2 shows the estimated clearing allowed under development consents for selected mining projects granted consent in NSW since 2010. Of the total area allowed to be cleared for these mines under their development consents, half is one of these two nationally listed critically endangered ecological communities.

As with the vegetation communities, clearing for large mining projects has repeatedly and cumulatively affected the habitat for a number of endangered and critically endangered fauna, notably the Regent honeyeater, Swift parrot and Greater long-eared bat. Likewise, thousands of hectares of koala habitat has been granted consent for clearing for mining projects. In the time available, we were not able to tally the clearing for these species, but a recent advice from the environment agency about the latest expansion project for the Mangoola mine noted that four fauna species, including Regent honeyeaters and Greater long-eared bats and the Box Gum Grassy Woodland community were at serious risk of extinction if the mining project went ahead as planned and cleared large remaining areas of their habitat which survived the 2019/20 bushfires. That project is yet to be determined by the Independent Planning Commission, but the determination decision will be a point of no return. Once State Significant Development consents are granted, there is no mechanism to revoke them again in response to worsening environmental conditions caused by the impacts of climate change.

Table 2: Estimated areas of native vegetation clearing for selected mining projects in NSW approved since 2010 including areas of two critically endangered ecological communities. Projects highlighted in red were granted consent before the CHVEFW community was listed as critically endangered under the EPBC Act.

Project	Approved	Veg clearing	Bum Woodland CEEC	Gum CEEC	Central Hunter Euc CEEC
Moolarben Stage 2	2015	1534	123		
<i>Bengalla Continuation</i>	<i>2014</i>	<i>881</i>	<i>535</i>		<i>10</i>
<i>Bulga Optimisation</i>	<i>2014</i>	<i>1611</i>			<i>556</i>

⁵ Peake 2006. *The Vegetation Mapping of the Central Hunter Valley, New South Wales. A report findings of the remnant Vegetation Project.* Hunter Central Rivers Catchment Authority.

⁶ See Department of the Environment (2015). *Approved Conservation Advice (including listing advice) for the Central Hunter Valley eucalypt forest and woodland ecological community.*

Maules Creek	2013	2078	754	
<i>Boggabri Extension</i>	2013	1385	624	
<i>Ravensworth Operations</i>	2011	567		526
Mount Pleasant mine	2012	2591	2591	
<i>Ulan Continued Operations</i>	2010	409	69	
<i>Mount Arthur Open Cut Extension</i>	2010	990	693	84
Mount Owen Continued Operations	2016	451		223
Warkworth Continuation	2019	611		380
United Wambo	2019	531		250
Mount Pleasant Optimisation	2022	475	230	90
Narrabri UG stage 3	2022	421		
Vickery Extension Project	2020	542		
Rix's Creek South	2020	156		38
Total		15,233	5,619	2,157

The information compiled here is not provided or required routinely as part of the assessment process for these developments.

Air pollution

The Upper Hunter Strategic Regional Land Use Plan promised that “Any new coal mine proposal must not cause exceedances of the health-based goals in the National Environment Protection (Ambient Air Quality) Measure (Air NEPM) at large towns such as Singleton and Muswellbrook.”

It also committed the Government to “Prepare a development assessment guideline for impacts on human health from dust generated by mining and other activities. The guideline will include maximum thresholds for both incremental and cumulative dust emissions.” This promise has not been fulfilled.

According to national and state policies there are supposed to be *no days* when ambient average PM₁₀ levels exceed 50µg per cubic metre. Patterns over the last ten years indicate that this effect is worst in dry years, as would be expected. In 2020, there were numerous exceedances of this daily average air quality standard for PM₁₀ particulate matter at all Hunter Valley air quality monitoring stations, including in Singleton and Muswellbrook. Maximum daily averages were also recorded that are many times the standard. Nearly 5% of days in Camberwell in 2020 had air quality that did not meet the national standard for PM₁₀.

Table 3: Annual and daily PM₁₀ data in 2020 (micrograms per cubic metres)

Annual and daily PM ₁₀ data in 2020 (micrograms per cubic metres)			
	Annual average	Maximum average	daily Number of days above standard*
Muswellbrook	22.5	181	15
Singleton	20.5	82.4	10
Maison Dieu	22.3	130.6	17
Camberwell	24.3	103.3	18

Singleton north west	22.2	82.9	14
Mount Thorley	22	89.1	13
Bulga	18.1	84.5	8
Muswellbrook north west	21	238.6	14
Wybong	18	373.6	13
Aberdeen	17.8	267.7	8
Singleton South	19.8	82.4	11
Jerrys Plains	20.5	134.5	17
Warkworth	23.7	124	17

Source: NSW Department of Planning, Industry and Environment air quality data for 2020.

*(days with average >50 micrograms/m3)

The number of days exceeding the daily average PM₁₀ threshold in the Upper Hunter reduced significantly in the rainy years of 2021 and 2022, but there were still daily exceedances during those years, including at the Singleton receptors.

Annual average air quality standards are also not being met. In Camberwell, annual average concentrations of PM₁₀ have failed to meet the national standard in five of the twelve years since the Strategic Regional Land Use Plan promised cumulative impact assessment. This standard has also been breached in recent years in the major population centres of Singleton and Muswellbrook. Again, the data demonstrates the compounding effect of heat, drought and fire, but after the relatively lower concentrations in the two La Nina years, measurement so far for 2023 indicates air quality is again deteriorating. Environmental Assessments conducted for new and expanding mines adjacent to these population centres are failing to accurately describe the existing environment which is experiencing unacceptable cumulative impacts already, and the Department of Planning consistently recommends every mine expansion project for approval despite the obvious deterioration in air quality.

Table 4: Annual PM₁₀ concentrations for selected Upper Hunter monitoring sites (exceedances of annual average PM₁₀ standard of 25 micrograms per cubic metre are in red)[1]

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
Singleton	22.3	23.3	21	19.3	19.3	20.8	24	30.1	20.5	17.5	17.5	18.9
Maison Dieu	25.8	25.8	22.7	20.4	20.4	23.1	27.9	38	22.3	17.6	14.5	19.9
Camberwell	26.4	27.8	24.6	22	24.5	27.4	31.1	39.9	24.3	20.6	14	20.2
Singleton Nth West	25.9	25.9	22.7	20.9	21.9	22.7	26.9	34.6	22.2	18.8	15.2	21.2
Mt Thorley	24.8	24.7	21.5	19.8	22.8	25.4	29.1	36.4	22	19	14.2	23.9
Bulga	18.7	19.2	17.7	15	16.1	17.2	21.3	28.6	18.1	12.9	10.6	15.5
Singleton Sth	19	20.2	18.3	16.9	18	19.4	23	30.7	19.8	16.5	14	18.8
Jerrys Plains	10.8	18.6	18.2	15.5	16.8	18	24.3	32.1	20.5	13.6	13.3	18.4
Warkworth	21.1	21.4	20.6	18.2	18.6	21.8	26.4	33.4	23.7	20.8	19.3	30.8
Muswellbrook	21.8	22.6	21.4	19.1	19.2	21.7	27.2	34.4	22.5	18.2	16.6	21.5
Muswellbrook Nth West	19.1	18.9	19.2	16.7	16.6	18.5	25	33.7	21	15.6	14.3	18.9

[1] Note that the annual average standard was reduced to 25 micrograms per cubic metre in 2016, so the exceedances in red for the years before that are anachronistic. Data obtained from OEH air quality monitoring website in January 2021 and October 2023. Average value for 2023 is the average of daily average PM10 readings so far.

Water resources

A Mid Hunter Groundwater Study commissioned by the NSW Department of Primary Industries – Water considered the effects of mining on groundwater in the central part of the Valley where mining is concentrated. That study found that there is an area of 977km² of the Hunter Valley likely to be affected by more than 2 metres drawdown as a result of open cut mining. This includes 123km² of alluvial water sources, 68km of the Hunter River and 31km of the Wollombi Brook.⁷ According to the Hunter Unregulated River background document, it takes years to decades for water to travel from the unregulated river surface to the porous rock aquifers that comprise the exploited coal measures.⁸ This means the drawdown we are seeing now, as summarised in the Mid Hunter Groundwater Study, may be the result of mining twenty years ago and we are yet to see the extent of the last ten years of substantially increased mining activity.

In addition to this groundwater impact, mines in the Hunter are collectively removing, unlicensed, large volumes of surface water that is captured on mine sites and used in the running of the mines. The volume of this capture varies with rainfall and in the last few years has ranged from 22GL to 40GL. To put this unlicensed water take in context, 40GL of rainfall and run off capture is equivalent to 5.75% of the mean annual flow of the Hunter River at Singleton.⁹

In addition, the bioregional assessment of the Hunter subregion estimated up to 12GL a year of “system losses” from the Hunter River and its tributaries as a result of hydrological change brought by extensive open cut coal mining.¹⁰

Modelling undertaken for the Greater Hunter Regional Water Strategy found that increased evaporation due to rising temperatures will result in “an average decrease of 19% in General Security annual water allocations across all modelled scenarios. In scenarios where mining losses are included the general security allocations decreased by up to 24%.”¹¹ Existing evaporation from mine storages in the Hunter is reportedly around 33.7GL, which is similar to the 39.5GL of water lost to evaporation from the two large storages in the system, Glennies Creek and Glenbawn Dams.¹²

These are the pre-existing cumulative impacts that should inform and be incorporated into all water impact assessments for coal mines, but none of the above research, undertaken by Government agencies, is included in individual mine assessments.

In the Namoi valley, mining is well established and new expansions and approvals are still being sought for coal mining, while Santos is yet to commit to proceeding with fullscale production at the Narrabri

⁷ EMM, for Department of Primary Industries – Water. *Mid Hunter groundwater study final draft report*, 7 April 2015.

⁸ *Water Sharing Plan – Hunter unregulated and alluvial water sources: Background document*. 2016.

⁹ Mean annual flow of the Hunter Regulated River in Singleton is 794,100ML according to the background document for the Hunter Regulated River Water Sharing Plan dated March 2017.

¹⁰ CSIRO Bioregional Assessment. Hunter subregion. Section 3-4 “Impact and risk analysis” July 2018. <https://www.bioregionalassessments.gov.au/assessments/3-4-impact-and-risk-analysis-hunter-subregion>

¹¹ NSW Department of Industry. *Greater Hunter Regional Water Strategy*. November 2018.

https://www.industry.nsw.gov.au/_data/assets/pdf_file/0008/196055/greater-hunter-regional-water-strategy.pdf

¹² Upper Hunter Mining Dialogue. Detailed Water Use Infographic 2016.

gasfield. All five coal mines and the gasfield target coal seams that form part of the Gunnedah Oxley Basin.

Groundwater is particularly crucial to the sustainability of the Namoi and during drought, groundwater use increases and recharge decreases. According to the Namoi Regional Water Strategy, groundwater levels decline in Zone 4 of the Upper Namoi Groundwater Source, which supplies Gunnedah and Curlewis, but groundwater-dependent towns in the region were able to maintain town water supplies during this period. The Strategy notes that “had the drought continued for longer, local water level declines may have impacted the ability of some towns to maintain the same pumping rate from groundwater.” Climate modelling undertaken for the Namoi Regional Water Strategy indicated that the total volume of water flowing each year, on average, could decrease by 47% in the Namoi River, in the next 40 years, with fewer high-flow events and more cease-to-flow events.

During the recent drought, the two largest open cut coal mines in the district, Whitehaven’s Maules Creek coal mine and Idemitsu’s Boggabri mine, took action which was later found to be unlawful, capturing surface water from the forested catchment above the mine and using it to supplement mining water demand despite not having surface water licences to do so. In both instances, this unlawful water take continued for a period of years, essentially depriving the downstream environment of water. In both instances, the mines had conditions of consent requiring them to adjust their operations to match water availability but instead of doing this, further contributed to water insecurity in the district. In both instances, the mines were approved as State Significant Development without their assessments considering the changed availability of water in the Namoi as a result of climate change.

Ability of local communities to adapt

New South Wales does not have a comprehensive adaptation plan, nor does the planning system provide for mandatory consideration of future environmental conditions when approving housing, infrastructure and other development.

Many of Lock the Gate’s members live in regional communities that have experienced significant extreme weather in the last five years. The recent drought in the Namoi region saw the river experience its lowest inflows on record. Communities in the Northern Rivers are still reeling from the record floods of 2022 and the experience of those communities underscores what formal research has also found: the impacts of climate change affect already marginalised communities far more severely, and worsen existing inequalities. Their experiences also demonstrate the importance of supporting and enabling self-organising community system to minimise the impacts of disaster, as summarised in primary research conducted by the Sydney Environment Institute.¹³ This is as true for adaptation and response to chronic physical risk as it is for disaster readiness response and recovery.

It is our observation that the same problems that have led to cumulative impacts in the planning system have also hampered community self-organisation and rebuilding, namely, centralised decision-making that is not responsive to local knowledge, denies agency to local communities and erodes the foundations for adaptation by harming the social structures and natural values that underpin resilience.

¹³ See SEI’s 2023 submission on this topic to the Commonwealth inquiry into disaster resilience <https://www.sydney.edu.au/sydney-environment-institute/our-research/climate-disaster-and-adaptation/self-organising-systems-to-minimise-future-disaster-risk.html>

We also refer the Committee to relevant findings of the IPCC Sixth Assessment Report, Working Group II Chapter 11, focused on Australasia. It finds that the risks of climate change “are projected to cascade and compound, with impacts and costs that challenge adaptive capacities” and summarises research that finds that local knowledge and inclusive decision-making are essential to climate change adaptation.

To that end, New South Wales urgently needs an enduring statutory framework to resource and support community-based climate change adaptation, resilience and capacity-building. This framework must draw on experience and research from around the world about the hard and soft limits of adaptation, the problems of maladaptation and the necessity of community agency and equity for effective adaptation strategies.