Submission No 189

SUSTAINABILITY OF ENERGY SUPPLY AND RESOURCES IN NSW

Organisation: Climate Action Newcastle

Date Received: 15 September 2019

Climate Action Newcastle
submission to

The Environment and Planning Committee of the NSW parliament
Inquiry into the Sustainability of energy supply and resources.

The Committee is examining prospects for renewable energy, trends and markets in energy supply and exports as well as the environmental, social and health impacts of energy supply and exports and opportunities for diversification in coal communities.

Terms of Reference

1. *The capacity and economic opportunities of renewable energy.*
2. *Emerging trends in energy supply and exports, including investment and other financial arrangements.*
3. *The status of and forecasts for energy and resource markets.*
4. *Effects on regional communities, water security, the environment and public health.*
5. *Opportunities to support sustainable economic development in regional and other communities likely to be affected by changing energy and resource markets, including the role of government policies.*
6. *Any other related matters.*

Dear Committee,

Please see following the Climate Action Newcastle Inc. (CAN) submission to the *Inquiry into the Sustainability of energy supply and Resources.*

CAN was established in 2006. It is a not for profit and non-aligned volunteer community group based in Newcastle working on projects, submissions and events toward action on climate change.

We thank the committee for the opportunity to make a submission.

Sincerely,

Su Morley
Convenor 2019
on behalf of Climate Action Newcastle

The climate imperative: Burning fossil fuels is fundamentally *unsustainable* for human existence and all life on Earth. We are calling for a rapid exit from all coal and gas-fired power to reduce greenhouse gas emissions; along with the rapid building and uptake of renewable energy, supported by the Australian and NSW government.

As we write, NSW is in prolonged and crippling drought. The Arctic is on fire. Rainforests in Kalimantan are on fire. Unprecedented bushfires are burning across Australia in springtime, in areas that have never previously burned.
Reference SMH 9 September 2019 Fires are burning where they never used to
https://www.smh.com.au/national/nsw/fires-are-burning-where-they-never-used-to-burn-20190909-p52pnn.html

It is evident that an urgent reduction in greenhouse gas emissions is required to maintain a safe climate. To do this, scientists advise that most of the world's fossil fuel reserves must be left in the ground, *unburned*, to keep global temperature rise to no more than 2°C increase (since pre-industrial times) in line with the recent Paris Agreement target.

Reference 'Unburnable Carbon'. The Climate Council.
https://www.climatecouncil.org.au/unburnable-carbon-why-we-need-to-leave-fossil-fuels-in-the-ground

Indeed, substantial changes to Earth's climate are already occurring at around 1 degree increase and many scientists warn that we may soon to reach 'tipping points' for irreversible climate chaos. They encourage more ambition in our greenhouse gas mitigation targets.

This should be actively planned for by every level of Government - and at the scale of the Apollo Project or Snowy Hydro Scheme to be commensurate with the level of urgency and threat.

Meanwhile, annual emissions from NSW coal exports, when burnt in overseas power stations, are approximately triple NSW's annual domestic greenhouse emissions. This gives NSW an important global role to play in tackling climate change. Based on the latest export volumes, emissions from NSW coal exports in 2017 are estimated at 393.12Mtpa CO2, compared with reported NSW emissions of 131.6 Mtpa
Reference: Coal Services NSW

Temperature projections for the end of this century depend on how deeply greenhouse gas emissions are cut. The world is tracking at the higher emissions scenarios, meaning temperature increases of between 2.8C and 5.1C in Australia by 2090. The "business-as-usual" approach to mining and burning fossil fuels is set to permanently heat Australia more than the rest of the world, which will average a temperature increase of 2.6C to 4.8C by 2090. This is clearly untenable.

All levels of Government must respond to the climate change advice from the NSW Office of Environment and Heritage, the CSIRO, the Australian Bureau of Meteorology, the Intergovernmental Panel on Climate Change, NASA, the Goddard Institute, and every other reputable climate science institute in the world; by actively planning to mitigate climate change by ceasing to mine and burn fossil fuels at the soonest time.

We are calling on the NSW Government to set:

- a target date and plan for achieving 100% renewable energy
- targets for the peak and reduction of per capita greenhouse gas emissions of NSW residents
- targets for decreasing per capita consumption of electricity – driving energy efficiency

- active resourcing and assistance to restructure coal communities such as the Hunter away from coal and into the zero-carbon industries, existing now and emerging

Building large scale renewable energy is central to this call, as well as accommodating medium and small renewable energy at the business and household scale.

The heavy reliance on coal mining and energy production presents an unacceptable opportunity cost for NSW in terms of environmental, social and economic risk i.e. 'stranded assets'. We seek a planned restructuring of our local energy generation and economy.

In Appendix A 'Some Coal facts for Newcastle and the Hunter', we set out the vast industrial scale processes in transporting the 160 m tonnes pa of the coal extracted from the Hunter and adjoining valleys, to the Port of Newcastle; and then to overseas destinations.

An organised and well thought-out transition from mining and transporting coal, and its burning to generate electricity, to the utilisation of renewable energy, will free up this vast transport juggernaut for many more productive activities which, over time, can ease the climate and environment impacts currently being endured.

New South Wales was once a world leader in climate mitigation, however a new Climate Council report shows it is now far behind, emitting more greenhouse gas pollution into the atmosphere than any other state or territory in Australia, as examined in a recent Climate Council report on the state's ongoing dependence on coal and gas power stations, and its tardy transition to renewable energy.
Reference: Ageing and Unprepared: Energy in New South Wales. The Climate Council
https://www.climatecouncil.org.au/wp-content/uploads/2019/02/climate-council-nsw-report-2019.pdf

This has rendered NSW vulnerable to changes in global coal markets as our overseas customers make shifts in their energy systems towards renewable energy. The most recent forecast from the Office of the Chief Economist shows likely declines in coal imports in our three biggest coal customers: Japan, South Korea and China.
Reference: Office of the Chief Economist. Resources and Energy Quarterly, March 2019

The following chart shows Thermal Coal exports in Volumes and Dollars:

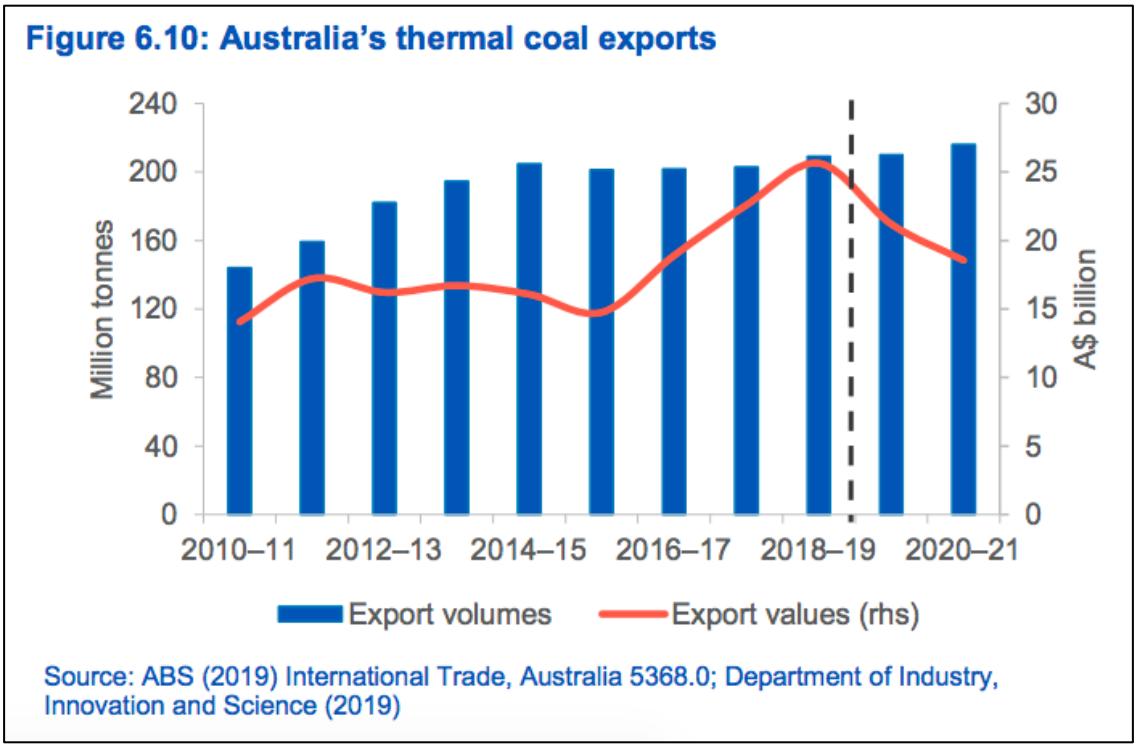


Figure 6.10 Australia's thermal coal exports. Page 50 Resources and Energy Quarterly 2019: https://publications.industry.gov.au/publications/resourcesandenergyquarterlyjune2019/documents/Resources-and-Energy-Quarterly-June-2019.pdf

A second chart also from the Office of the Chief Economist from June 2019, shows Annual Growth in both Values and Volumes of Thermal Coal exports diving into the negative.

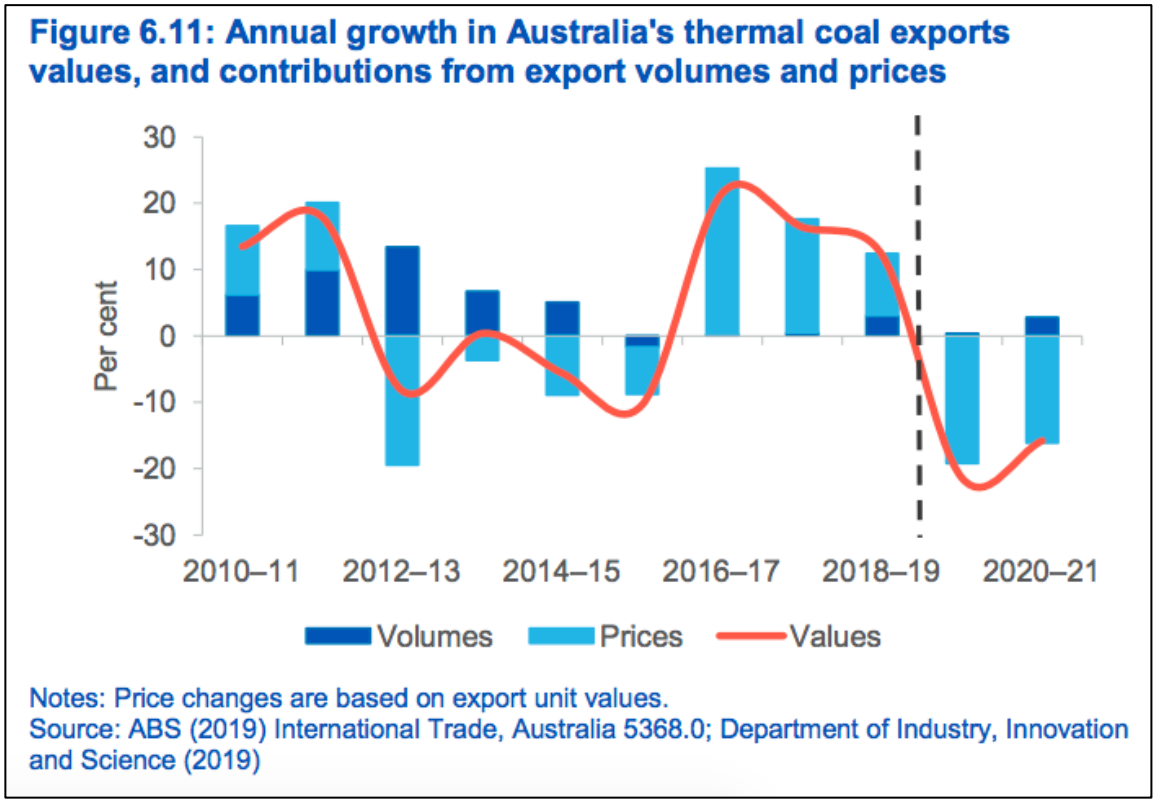
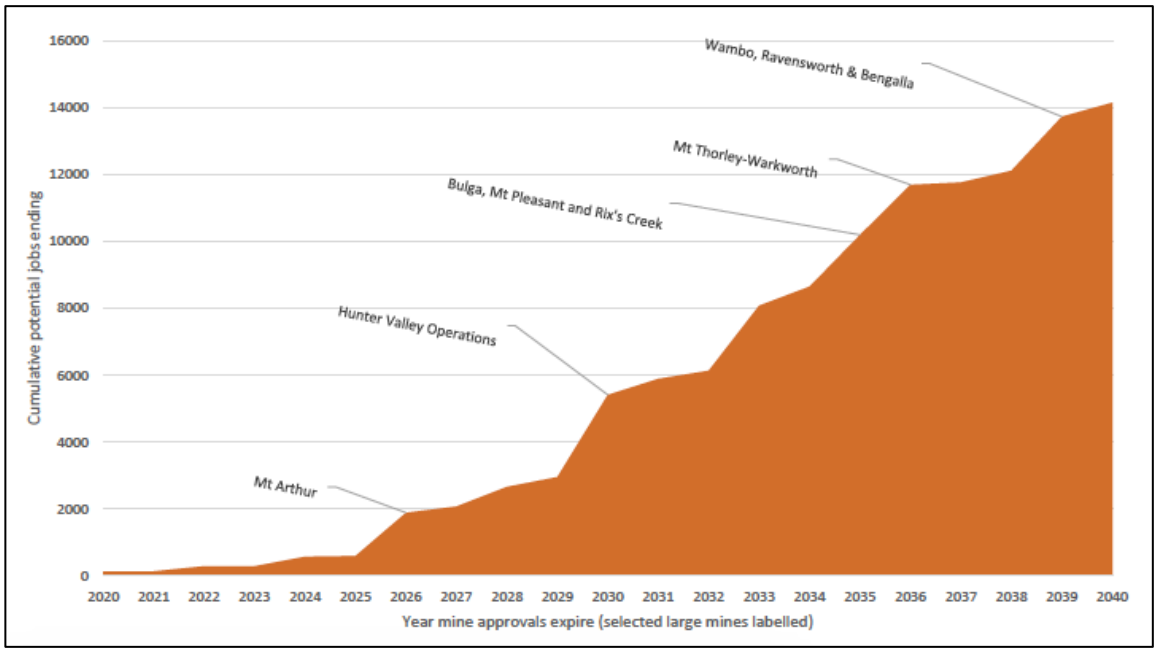


Figure 6.11 Annual growth Australia's coal exports values. Page 50 Resources and Energy Quarterly 2019: https://publications.industry.gov.au/publications/resourcesandenergyquarterlyjune2019/documents/Resources-and-Energy-Quarterly-June-2019.pdf

The next diagram shows the latest approval date expiry for NSW thermal coal mines is 2040.



Plotting the approval end dates of 35 coal mines, with the jobs supported by those mines, shows the potential cumulative job losses over the next two decades as mines close.
The latest approval date expiry for NSW thermal coal mines is 2040.

If the Federal and NSW governments do not assist coal and energy centres such as the NSW Hunter region to prepare for these global changes already underway by supporting new industries to grow, over 5,000 jobs and $705m in wages and salaries may be lost when global declines in coal occur.
Reference: Dr Neil Perry. Weathering the Storm. January 2019
ttps://www.lockthegate.org.au/weathering_the_storm_transforming_the_hunter_valley

Four of NSW's five coal fired power stations are expected to close in the next 17 years. All of them are in the greater Hunter region – two in Lake Macquarie and two in Muswellbrook. The estimated closure timelines are: Liddell in 2022, Vales Point in 2028, Eraring in 2035 and Bayswater in 2036.
Reference: Aurora Energy Research analysis of AEMO's ISP Part 2: economics of coal closure. May 2019

That doesn't leave NSW communities that are heavily reliant on coal exports and coal-fired power stations very much time to diversify and prepare, so Government support is urgent and vital.

Coal Seam Gas is not clean energy, has no social licence, and should not be developed

The CSG industry has proven to be environmentally risky, and not the low-emissions energy source that those championing the sector originally claimed it to be.

The Australian Energy Market Operator indicated that no gas shortage is expected due to lower-than-forecasted consumptions levels. The industry is export market driven, and with energy efficiency measures and the rapid rise of renewable energy, the general demand for gas is declining and could halve within a decade. If unnecessary gas infrastructure is built on the basis of

inflated gas demand projections then unnecessary network costs will be passed onto NSW Households and businesses, as happened with electricity prices over recent years.
Reference AEMO Gas Statement of Opportunities
https://www.aemo.com.au/Media-Centre/2015-Gas-Statement-of-Opportunities

CSG is already outdated with no 'social licence' seeing operators such as AGL already pulling out of operations in Gloucester and scaling back across the board.
Reference: AGL announcement https://www.agl.com.au/about-agl/how-we-source-energy/natural-gas/about-coal-seam-gas

Additionally, licence buy-backs are expensive and wasteful for the taxpayer and it would be less risky to not issue any more licences for GSG in the first place to avoid this scenario recurring.

Recommendations on Coal Seam Gas in NSW:

- The NSW Government must respond to the lack of 'social licence', economic and environmental viability for Coal Seam Gas, the abandonment of the Gloucester Project by AGL and Dart Energy in Salt Ash, and asset write-downs across the industry.
- Coal seam gas wells should not be further developed in The Pilliga, and no new licences should be issued to avoid future licence buy-backs and stranded assets along with irreparable damage to rare forest ecosystems in an over-cleared landscape and key sink-point for the Great Artesian Basin.
- Coal seam gas is not a low-carbon technology and preference should be given to clean renewable energy.

The message from the ground is that people want planned restructuring away from gas and coal mining and burning as soon as possible. Follow the Hunter Renewal Road Map.

The Hunter Renewal project has spoken to more than 2,000 people around the region and out of a series of events and research the Hunter Renewal roadmap has emerged: 9 out of 10 people agree that the region needs a plan to diversify and prepare for a future beyond coal. This 'roadmap' is attempting a new approach: to involve and prepare the community and economy for structural adjustment before it happens, so the Hunter can be vibrant and resilient. Climate Action Newcastle fully supports the following recommendation by the Hunter Renewal Project:

"We recommend that the Committee studies adjustment from other places and ensures those lessons are applied to support communities here, particularly with regard to public investment, community participation, worker re-training and re-employment and diversification planning.

Thus, the time for the NSW Government to be moving down the Just Transition pathway is now URGENT.

We consider this inquiry will be crucial to New South Wales' future, examining how best to support regional communities and diversify economies, like the Hunter Valley, to make them less reliant on coal mining, whilst also assessing how to bring down power prices and clear the air with renewable energy."
Reference: www.hunterrenewal.org.au/road_map

Government planning and resources are urgently needed to put a solid economic floor under the vulnerable local workforce of the Hunter - with a planned readjustment such as has been successfully implemented in the La Trobe Valley Victoria and The Ruhr in Germany. This will see opportunities in renewable energy production, mine environmental rehabilitation and coal-ash dam rehabilitation.

There are opportunities to diversify regional economies, such as the Hunter region, using the skills and assets it already possesses. However, this will only be achievable if government support is provided to start preparing for the changes now.

Expert research has shown that if action is taken now to prepare for change, and a clear plan is developed, the Hunter region could see 595 more new jobs created than stand to be lost from current jobs in coal mining; and it may see local wages and salaries increase by $315 million in 2040. This scenario builds on the region's existing strengths in the agriculture, wine-tourism and manufacturing industries and on the strong skills base already present of machinery operators and drivers and technicians and trade workers.

Reference: Dr Neil Perry. Weathering the Storm. January 2019.

Raising the standard of mine rehabilitation can provide a crucial jobs "bridge" for coal workers while new industries are building; and replacing coal power stations and rehabilitating their ash dams can also bring new jobs and affordable energy to the Hunter region with targeted support.

Reference: Industrial Relations Research Centre. October 2017. The Ruhr or Appalachia? Deciding the future of Australia's coal power workers and communities.

Adjusting regional economies is a great challenge. Regional communities have been seeking major government investment and strong diversification planning, with direct community participation and leadership. NSW could be proactive and benefit from adopting this transition or experience *unmanaged and unplanned* coal closure such as in the Appalachia region of the United States which has been "characterised by short-term, reactive and fragmented responses to closures of coal mines, resulting in entrenched, intergenerational poverty and social dysfunction.

Reference: Tony Maher, Foreword. The Ruhr or Appalachia

In contrast, in Germany's Ruhr Valley, a decision was taken in 2007 to manage the adjustment over an eleven-year period, involving communities, stakeholders and unions in an orderly process. Germany established a dedicated Coal Commission, made up of workers, companies, experts and environmentalists, and has now released a plan with funding and environmental protections.

Lessons from elsewhere in Australia, including the La Trobe Valley and Port Augusta, have highlighted that worker assistance and support for re-training and re-employment is crucial.

More detail can be found in The Hunter Renewal roadmap. www.hunterrenewal.org.au/road_map

With adequate Government investment in education, training and planning for restructuring in areas jobs and careers in energy production stand to increase as outlined in the Hunter Valley Just Transition Report.

Reference: The Centre of Full Employment and Equity's 2007 report, *A just transition from coal to renewable energy in the Hunter Valley*

The purchase of electric vehicles manufactured in former coal towns could be stimulated via government procurement and servicing contracts such has been demonstrated by the Daniel

Andrews Labor government in Victoria with a $500 million subsidy announced for electric vehicle manufacturer SEA to set up in the Latrobe Valley.
Reference ABC News October 2018. http://www.abc.net.au/news/2018-10-30/electric-cars-set-to-bring-500-jobs-to-latrobe-valley/10448344

Opportunities for adopting renewables and new industries in a timely manner

The federal government's top scientist Alan Finkel says Australia could slash global carbon emissions and create a multi-billion-dollar export industry by developing hydrogen as an everyday energy source to replace fossil fuels used in vehicles, homes and industry.

Reference: Australia's top scientist calls for hydrogen revolution to replace fossil fuels. Sydney Morning Herald 9/10/18. https://www.smh.com.au/politics/federal/australia-s-top-scientist-calls-for-hydrogen-revolution-to-replace-fossil-fuels-20181009-p508mj.html

A report by the UN's Intergovernmental Panel on Climate Change Oct 2018, called for a coal phase-out by 2050 and predicted a substantial decline in the use of natural gas – two export industries upon which Australia is heavily reliant. It identified hydrogen, which can be produced with virtually no emissions, as among fuel options that must be developed if the planet is stay below the critical 1.5 degrees warming threshold and avoid the worst climate change disasters.

There is further opportunity regarding Renewable Energy which could, over a relatively short period, provide for the complete phasing out of Fossil Fuels for most Industry, Transport, Buildings etc.

Since its inception, non-government research organisation Beyond Zero Emissions has produced ten publications that spell out in great detail how fossil fuels can be phased out and replaced for most of Industry, Transport and Buildings in Australia.

See all reports for reference: https://bze.org.au/research/

We note this extract from *The 10 Gigawatt Vision: How renewable energy can power jobs and investment in the Northern Territory.*

"The Northern Territory has an exceptional opportunity to prosper in this new era by converting abundant sunshine into renewable energy. By 2030, the NT Government could help drive investment in 10 gigawatts of renewables.

By pursuing the 10 Gigawatt Vision, the Northern Territory can put renewable energy at the centre of a sustainable growth strategy that creates over 8,000 new jobs and over $2 billion in revenue by 2030.

The 10 Gigawatt Vision is a sustainable alternative to economic strategies based on fossil fuels. The shale gas industry is financially unstable and totally unsuited to the needs of the coming zero-carbon economy.

Achieving the 10 Gigawatt Vision has the potential to create many more jobs than the shale gas industry and prevent over 20 billion tonnes of carbon emissions from entering the atmosphere and accelerating global warming.

Reference: The 10 Gigawatt Vision: How renewable energy can power jobs and investment in the Northern Territory published by Beyond Zero Emissions.
https://bze.org.au/research/regional/repowering-nt/

Significantly, Hunter heavy industry is proactively moving to renewable energy - as demonstrated in this "Landmark Sustainable Power Purchase Agreement" which should be emulated and supported by government.

As demonstrated by (Newcastle-based) Molycop's latest announcement, we are seeing large heavy industry in the Hunter proactively moving to renewable energy, which should be supported and expanded by Government, noting that the ARENA Demand Response program was key to this renewable uptake. Announcement extract:

"Molycop, incorporating Comsteel, has announced the signing of a long-term Power Purchase Agreement (PPA) with energy retailer, Flow Power. This agreement runs until 31 December 2030 and is backed by offtake agreements with the Bomen Solar Farm and the Sapphire Wind Farm, both located in regional NSW.

Under the PPA, Molycop's expected offtake of renewable energy is 100,000 MWh per year which covers more than half of its electricity consumption in NSW. This will make Molycop one of the largest purchasers of renewable energy in Australia."

"From a sustainability standpoint, Molycop is not only supporting two important renewable energy projects, but we are further enhancing our credentials as a responsible and sustainable organisation. We already utilise 95% recycled feed for our steelmaking process, material that would otherwise be exported, and we are offering customers an expanding range of recycling services" said Mr Parker.

Molycop chose to partner with Flow Power due to their offer of both wind and solar offtakes and access to the ARENA Demand Response program, as well as their energy sourcing and forecasting expertise.

Matthew van der Linden, Managing Director Flow Power, said "Flow Power is proud to be working with Molycop to unlock value from their energy sourcing. It's fantastic to see Molycop take the next step on their energy journey. By combining renewable offtake and demand response, our unique model will future-proof energy needs while supporting the changing energy system".

Reference Web story August 29, 2019:
https://molycop.com/why-we-do-it/landmark-sustainable-power-purchase-agreement/

Replacing coal and gas-fired energy with renewable energy will have benefits for population health, environmental-sustainability, and household affordability

Replacing coal and gas-fired electricity will not only improve our prospects for a safe climate, but also improve air quality, lower electricity prices and strengthen our regional economies. We note the damaging effects to health in coal mining and energy producing areas such as the Hunter.

Reference: EPA NSW. Clean Air for NSW consultation paper. 2016. https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/air/clean-air-nsw160415.pdf

Coal mining and burning consume large volumes of water. In times of drought, our energy systems are vulnerable because they rely on water, and the demand from coal also impacts on other water users, especially agriculture.

Reference: Department of Premier and Cabinet (2017) Upper Hunter Diversification Action Plan and Infrastructure NSW 2014 State Infrastructure Strategy Update Chapter 6 "Water"

We have seen unsustainably high gas price rises in NSW through the opening of gas exports from eastern Australia and introduction of high cost coal seam gas to the market has driven up gas prices.

We have sadly seen very significant destruction of native forests and productive farmlands in the Hunter Valley and Central West. Other groups will have more expertise and data than us, relating to the industrial-scale coal mining taking place in this region; but the extent is almost overwhelming in many places on the Hunter Valley floor around Singleton, Muswellbrook, Denman; and in areas in adjoining nearby valleys such as Gloucester, Wollar and Ulan, and if current proposals are approved: the Bylong Valley and Liverpool Plains.

Underscoring the local impacts of coal on local communities, in 2005 philosopher Glenn Albrecht coined a new word *Solastalgia***,** while working at the University of Newcastle. It best describes the suffering people are experiencing with this Destruction and Change.

Simply put, it is "*the homesickness you have when you are still at home".*

References: http://theconversation.com/the-age-of-solastalgia-8337
https://en.wikipedia.org/wiki/Solastalgia

Appendix

A. Some Coal facts for Newcastle and the Hunter

1. Newcastle is the largest Coal export port in the world

2. Coal exports make up about 96% of the products and ship traffic in the Port of Newcastle

3. About 160m tonnes of Coal exported annually;

4. About 22,500 Coal trains pa bring the coal to the port. About 22,500 unloaded coal trains pa leave the port. Total Coal trains about 45,000 pa.

5. These trains are mostly nearly 2 Kilometres in length and carry about 7,500 tonnes of coal per train.

6. About 3.5m wagon loads of coal per year.

7. These coal trains usually have 3 or 4 locomotives – so many more than 100,000 locos pa haul these trains down and up the valley.

8. Each coal train uses about 1,500 L of diesel per hour.

9. Most locos hauling coal to Newcastle are Tier 0 for fuel emissions. The latest standard is Tier 4

10. About 4,000 Coal ship movements in and out of the Port pa; plus tugs

11. Each Coal ship has 3 or 4 tugs, so about 14,000 tug movements pa.

12. From the 3.5 m Coal wagons which come down to Newcastle Port and go back to mine heads pa. @ 8 wheels per wagon; that is 28,000,000 wagon wheels pa rolling along the local Newcastle and Hunter etc Rail lines.

13. From the more than 100,000 Locos hauling Coal Trains to Newcastle Port and go back to mine heads pa. @ 12 wheels per Loco; that is 1,200,000 Loco wheels pa rolling along the local Newcastle and Hunter etc Rail lines.

Source: Compiled Newcastle Port and other statistics from Rick Banyard: Researcher for Correct Planning and Consultation for Mayfield Group 11th Sep. 2019