

**Submission
No 200**

SUSTAINABILITY OF ENERGY SUPPLY AND RESOURCES IN NSW

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The Inquiry into Sustainability of Energy Supply and Resources.

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Dear Committee

For 25 years I have lived in Newcastle and have an appreciation of the industries that have shaped the Hunter region. Our world is at a crossroads into a new era, offering opportunities to resolve issues that have manifested from the relentless use of fossil fuels since the industrial revolution.

Newcastle is the world's largest coal port. Diesel trains that are 2km long carry coal from the mines in uncovered carriages and dump it at the port. When we drive to Stockton, we see the huge stockpiles of coal and the loading facility that fills the coal ships to transport the coal to other countries. Our children have grown up on the beach, looking into the horizon and counting over 40 coal ships at a time, in the horizon.

These days there are less ships waiting for the coal. On some days less than 10 are visible in the horizon. As renewable energy generation becomes more cost effective, the countries that import our coal will want less of it.

We now live in a world that faces an uncertain future. Not only is our atmosphere at risk with elevated levels of CO₂, but also the social structures of mining communities are at risk. Young families who depend on the generous wages from coal mining, may soon not have an income as the demand for coal decreases and the industry is becoming increasingly automated.

There are 9,000 workers in our Hunter Valley mines. With the future of our region at risk, I am calling on you to listen to what the people of the Hunter region have to say, by holding public hearings. The Hunter Renewal Roadmap is a plan to empower our mining communities right now. We do not want our mining communities to hang in suspense with the uncertainty of the industry and the threat of unannounced sudden closure.

The possibilities for rehabilitation of the workforce and up-skilling will require planning in advance before the downturn in the coal industry. We Novacastrians are a proud mob and we need to have a say about what happens next. The time to plan is now.

The Hunter Valley is not only an area of coal mining and energy generation, but is also of significant agricultural importance. New employment can be created by setting up educational centres and training to commission renewable energy generation and regenerative agriculture. This would contribute to greater regional and national self-sufficiency.

As a graduate in Agricultural Science from the University of Sydney in 1989, I have been interested in the welfare of our farming land since my youth. In 1990, I visited many certified organic farms in Victoria and NSW. This gave me an awareness of how the desolate soil of an Australian landscape can be transformed into a diverse and productive farming environment.

Regenerative agriculture relies on the richness of biodiversity and the creation of carbon sequestering soil biology. As a living entity, our soil needs to be sheltered by vegetation and nourished with matter that attracts micro and macro organisms bringing it to life and transforming it into a subterranean water reservoir, rich with plant nutrients.

It is said that regenerative agriculture is one of the quickest ways to draw atmospheric CO₂ back into the soil. The Rodale Institute white paper states that regenerative agriculture can sequester carbon and reverse climate change by 100%.

My Vision for the future is for the creation of a complex green landscape in the Hunter, where contouring will capture water in our farming lands and transform it into a bio-diverse farming system.

The more plant life there is, the more water the soil can hold, the more moisture the plants can release to the atmosphere through evapotranspiration and the greater the likelihood of rain. Much of our farming lands are in a famine-like state, lacking organic matter and at the mercy of changed rainfall patterns.

Bare soil is prone to wind erosion and gets washed away by heavy rain. There are many regenerative techniques that can be applied to farming in the Hunter to sequester carbon into our soil. Solar Panels incorporated into our farming lands and the rehabilitation process of our mined sites will also provide a new function to our productive agricultural landscapes.

In a study by Hassanpour Adeh, Selker and Higgins that took place at Oregon State campus, it was found that there was a significant difference in microclimate and soil moisture content in an Agrivoltaic system. The strategic

placement of solar panels on grazing lands, created shelter that slowed down evapotranspiration and contributed to increased biomass production.

Compared to the control area without solar panels, there was a 26% increase in plant growth. The water efficiency was over 3 times greater compared to the control area. This study demonstrates how agricultural production and renewable energy generation can be combined to enhance production.

This is a call to the NSW government, to consider current land use, and how it will impact future generations. I am willing to meet with you and make a public presentation as a call to action to start employing our human workforce in a myriad of possible new jobs involved in making our state and our continent a sustainable place with future security in food production and renewable energy.

The research has been done, the technology is available and just waiting to be applied. I see a bright future, in which our governments acknowledge that our natural resources are out of balance, so the people of the Hunter can be supported to engage in new industries, that will colour our landscapes and our lives with hope and vitality.

In order for NSW to become more sustainable in Energy Supply and Resource management, I am calling for:

1. Farmer education and support to provide incentives and understanding of what is required to regenerate our soils.
2. Incentives for combining regenerative agriculture with solar energy generation to create Agrivoltaic systems.
3. Immediate transition to renewable energy, to phase out our reliance on coal. Renewable energy sources are becoming more cost effective than energy generation from coal. Beyond Zero Emissions (BZE) is a research organization that has plans for a 10 Gigawatt system through solar energy generation.
<http://bze.org.au>
4. New opportunities in training and an education system to implement a zero waste and low energy use society.
5. Home and garden retrofitting, encouraged by new council standards to reduce residential energy consumption and store water effectively.
6. Government support for more reliable public transport powered by renewable energy.

Thank you for the opportunity to voice my vision for the Hunter.

Sincerely

Maria Larratt

References:

Citation: Hassanpour Adeg E, Selker JS, Higgins CW (2018) Remarkable agrivoltaic influence on soil moisture, micrometeorology and water-use efficiency. PLoS ONE 13(11): e0203256.

<https://doi.org/10.1371/journal.pone.0203256>

<https://rodaleinstitute.org/wp-content/uploads/rodale-white-paper.pdf>