

Submission to the Economy and Infrastructure Committee of the Victorian Parliament

Chair

Inquiry into the Closure of Hazelwood and Yallourn Power Stations

Australian Carbon Innovation was established by the Victorian Government in 2009 as an independent organisation to support innovation and research measures that are focused on developing options for the utilisation of the Victorian lignite deposits for a future that will transition from using lignite for low-cost electricity generation to new and innovative products from this valuable mineral resource.

Initial funding for ACI came primarily from the Victorian Government, which focused on alternative products and has been matched by the Commonwealth which had a focus on lowering emissions from power generation and the application of carbon capture and storage. ACI used a model for allocation of funds through research grants that required at least a matching contribution and participation from industry. This has led to ACI achieving the highest funding multiplier in the research sector.

The work of the ACI over the past 12 years has evolved as options were explored and assessed as having either potential as a future industry in the Latrobe Valley or rejected as not viable either on technical or economic grounds. Key factors in our assessments were the pool of highly qualified engineers and tradespeople who could form the core of a new industrial base, the utilisation of a low cost and emissions free lignite deposit, the assessments by the Australian and Victorian Governments that offshore Gippsland offered some of the best opportunities for safe geological storage of CO₂ below depleted gas fields, the research and demonstration of geological storage technology by CO₂CRC and the existing gas and electricity infrastructure in the Latrobe Valley. The work of ACI is documented in the Legacy Report which is attached.

A key factor that underpins our work to find alternative uses for lignite is the recognition that lignite is essentially a mixture of carbon, organic compounds and water and by itself is not a greenhouse gas. Atmospheric emissions only occur from the combustion of lignite, the heat from which is used to generate steam for the Latrobe Valley steam turbines that produce electricity. Unlike many black coal deposits, the lignite in Latrobe Valley does not contain any significant greenhouse gases (primarily methane) that could be released in during mining.

From its inception, ACI accepted the assessments on global warming from the IPCC and that reducing atmospheric emissions was a policy objective of the Victorian Government. However, ACI does not accept the validity of the strategy that it is acceptable to continuing

the use carbon-based goods and products by reducing domestic manufacturing to meet emission reduction targets and then importing from manufacturers in other countries which do not have the same emission reduction strategies, and which results in higher levels of atmospheric emissions.

Whilst economists and others use the terminology of “decarbonise the economy” when espousing a sustainable future, this reflects failure to understand a fundamental fact that life on our planet is carbon based and carbon itself is not the problem. Rather it is the atmospheric emissions of certain greenhouse gases that is leading to global warming. All industry, including renewable energy, uses carbon in a variety of ways. In particular the use of carbon is fundamental to agriculture, pharmaceuticals, construction (production of steel and cement), transport (carbon fibre is used to construct planes, trams, trains and cars) and the renewable energy technologies where solar, wind and batteries have an essential carbon component.

With a world class carbon resource base and a strong history of an innovation by Australian industry, the Latrobe Valley has an opportunity to transition to a global centre for development of carbon technology to underpin a sustainable and low emission future.

There is a strong consensus that another lignite-based power station will not be built in the future. But outside of power generation, there are still uses of lignite that are compatible with the State’s climate goals. To create this future will not be easy, but ignoring the state’s largest and most valuable natural resource on ideological grounds risks the future prosperity of the region and the state. The steps taken to date to assist in the transition are supported but we believe are being limited by the blinkered view of the role that lignite can play in a prosperous future that takes advantage of the inherent skill and capability base of the region.

Any significant delay in the implementation of the transition process will see this skill base evaporate and the region will lose one of its key competitive advantages. An investment into the conversion technologies possible with lignite; such as carbon fibre, graphenes, fertiliser, bio stimulants, soil carbon and chemical production will repay itself many times over with increased economic activity and regional wealth that will flow through to the state and federal arenas.

Adoption by Government industry and the community of a proactive approach to building a new industrial base could see new industries in the Latrobe Valley focused on production of fertilizers, low-cost carbon fibre, graphene for the electronics industries and activated carbon used in food and health industries and for filtration to clean in water and sewage. The time to commence this investment was 4 years ago when the decision to shut down Hazelwood was made. The next best time is now.

Responses to the Terms of Reference

a. impact of the closure of the Hazelwood Power Station on the economy and jobs of the Latrobe Valley, and the success or otherwise of economic recovery efforts to date.

The Australian National University Centre for Climate and Energy Policy published a comprehensive paper¹ in November 2020 that considered the impact of the closure of Hazelwood and provided somewhat of a template on the process to ensure a smooth transition. The paper drew heavily on the activities of the Latrobe Valley Authority and stressed the need to move rapidly from an emergency response (required under the short notice period for Hazelwood) to a more strategic planned approach that had a focus on long term sustainable economic models. In as far as this analysis goes it is a good generalist view of what needs to occur in any transition but it is very short on detail. Its conclusion that “A well-managed, just transition to a prosperous zero-carbon economy depends on proactive, mission-oriented industry policy and regional renewal strategies; respectful and inclusive engagement with workers and communities; and adequately funded, well-coordinated public investment in economic and community strategies, tailored to regional strengths and informed by local experience²” is little more than a motherhood statement.

There is no doubt that the closure of Hazelwood caused a sharp negative impact of the Latrobe Region with 800 - 1,000 direct jobs being lost and probably twice that in indirect employment. The government went into emergency response mode and established the Latrobe Valley Authority (LVA) to coordinate the government response. The success or otherwise of the LVA varies with the audience being asked. Based on community feedback at ACI seminars, some believe it to be a very effective vehicle that is able to deliver coordinated policy and program outcomes for the region. Others view it as an organisation that is focussed on delivering an ideological position, rides roughshod over local government and has an overwhelming negative attitude to the utilisation of the lignite resource in the region.

The early response has seen the ‘low hanging fruit’ having been harvested. The stated investment of \$288m by the state government does not appear to have represent good value for money as it has not resulted in any significant growth in the region’s economy. This level of investment is unlikely in a second closure and a more fundamental and strategic approach will need to be taken that incorporates all the region’s natural advantages.

What is clear is that there is a need to coordinate the transition response to the decline of the thermal power industry. The key question will be how to best utilise the resource in

¹ After the Hazelwood coal fired power station closure: Latrobe Valley regional transition policies and outcomes 2017-2020 CCEP Working Paper 2010 Nov 2020 - Wiseman

² Ibid p.26

other economic sectors, while remaining consistent with climate goals. The potential for this is covered in the attachments 1 and 2.

b. expected economic impacts of the proposed closure of Yallourn Power Station in 2028 and options the State Government can pursue to offset the loss of more than 1,000 direct jobs from the plant, as well as associated contractors

In many respects the closure of the Yallourn power station may have a greater economic and social impact than the closure of Hazelwood even though the direct job loss will be lower than for Hazelwood. The operation and maintenance ecosystem of the Latrobe Valley relies on scale and volume of work to retain the critical mass of the service industry. The loss of Hazelwood caused a shock in this sector but has not so far led to a large-scale loss of service providers. The closure of Yallourn may see this large-scale loss as the volume of work in the engineering and maintenance sectors declines markedly. This is likely to lead to a 'fly in, fly out' business model; probably serviced from Melbourne, that would have a major impact locally as whole families would be forced to relocate or accept jobs in sectors at a lower average wage rate.

To effectively develop new industry sectors takes time and as mentioned the best time to invest was 4 years ago. However, the longer the delay to invest in productive areas of the economy where the region has a natural advantage, the less likely it becomes that a smooth transition to a post power economy is going to be achievable. Investment in community infrastructure is an important element but will be wasted if productive sectors of the economy are ignored as the return to the community that high paying, plentiful jobs provide makes the maintenance of these assets impossible.

The neglect of the lignite resource represents a major missed opportunity for the region, notwithstanding the current Hydrogen Energy Supply Chain (HESC) and CarbonNet programs. It should be noted that these projects are a legacy of the Brumby and Rudd governments and have received little support by the current government with notable exception of Minister Pallas and Minister Pakula.

The government should consider providing seed funding to promising technologies that are able to demonstrate a commercial potential and the capacity to provide significant skilled and high paid jobs. These are likely to be in the advanced manufacturing and chemical conversion sectors where an inexpensive, plentiful and clean resource is a major advantage for the region. This pathway is recognised in the US where the National Energy research organisation (NETL) recognise the potential of coal in the manufacture of advanced carbon materials³. This is despite the majority of US coal being of a lower quality from a feedstock perspective than Latrobe Valley coal.

³ Reinventing Coal: Researchers Create Novel Materials from a Declining Energy Resource
Jenny Bowman, National Energy Technology Laboratory (NETL), 2019

c. success or otherwise of the Latrobe Valley Authority (LVA) to help the region transition, in light of the decline of funding made available to the LVA over successive State Budgets

There is no doubt that a central coordinating body is needed to manage the transition process on behalf of the government and it should be locally based and not in Melbourne. The LVA is a body already in place with the invested support infrastructure available to carry out this role. What it lacks is the remit and the resources to consider wholistically the requirements and opportunities for and in the region. A common perception is that the LVA is captive to an agenda that does not view lignite as a mineral resource that can be developed and utilised in a low emissions, hi-tech economy.

There is an increasing tendency for all governments to focus on the here and now and fail to plan and act for the long term. Increased investment now is not a handout as the payback in the future will be a strong economic region that is a net contributor to the state's economy not a burden that requires ongoing social and economic subsidy. Whatever mechanism that manages the transition process must be adequately funded to encourage private sector commercial investment into productive assets. The future for the region is not going to be artisan cottage industry, nor aged care and community service sectors. Although these are important support sectors, they need the foundation of an industrial economy to underpin them.

A key example of this is the energy sector. Traditionally the Latrobe Valley has been the energy capital for the state and provided the capacity for the state to be the manufacturing centre for Australia. Southern Victoria is not blessed with accessible renewable energy resources, particularly solar, that are available elsewhere in Australia. Wind is moderately more plentiful, but the higher population density makes large scale wind farms problematic. Star of the South offshore wind farm is a substantial project but still has significant hurdles in front of it and offshore wind is not cheap. So, with the (planned or unplanned) decline of coal as a power source it will not be possible for renewable energy production to step into the breach in Latrobe Valley no matter how much that may be desired.

The Valley does have a major asset in its distribution system that is able transmit more power than is possible from renewable generation. This leads to the potential for hydrogen as an energy carrier, storage medium and also as an electricity generator in the future. A successful, carbon neutral hydrogen production capability based on coal would see the renewable sector much more competitive as it would be able to provide electricity for hydrogen production at incremental cost as the supply chain would be paid for by thermally produced hydrogen.

A concern of ACI is that the terms of reference for the LVA appear somewhat opaque. Even the name does not provide a clear guidance to what its purpose is. We believe that the focus for the authority should be clearly and unashamedly on the transition process for the region. A redefining of its role together with a name change to something like the Latrobe Regional Transition Authority and clear terms of reference and adequate budget would provide the direction the community needs.

Attachments

1. Transformational Carbon Products for Victoria's Low Emissions Future
2. Next Generation Carbon Products in Victoria
3. After the Hazelwood coal fired power station closure: Latrobe Valley regional transition policies and outcomes 2017-2020 CCEP Working Paper 2010 Nov 2020 – Wiseman
4. Reinventing Coal: Researchers Create Novel Materials from a Declining Energy Resource by Jenny Bowman, United States National Energy Technology Laboratory (NETL)
5. Regional Jobs Brochure
6. Novel CO₂ Capture Report
7. ACI Legacy Report.