Submission to Productivity Commission Productivity inquiry. John O'Donnell.

1 Introduction

The Productivity Commission is now seeking input on the interim report 5-year Productivity Inquiry: Innovation for the 98%. Submissions can be made at www.pc.gov.au and close 21 October 2022.

Scope of the inquiry

The Commission is to review Australia's productivity performance and recommend an actionable roadmap to assist governments to make productivity-enhancing reforms. Each recommendation should qualitatively and quantitatively estimate the benefit of making the reform and identify an owner for the action and a timeframe in which it might occur.

Terms of reference

Without limiting related matters on which the Commission may report, its report to the Government should:

1. Analyse Australia's productivity performance in both the market and non-market sectors, including an assessment of the settings for productive investment in human and physical capital and how they can be improved to lift productivity.

2. Identify forces shaping Australia's productivity challenge as a result of the COVID-19 pandemic and policy response.

3. Consider the opportunities created for improvements in productivity as a result of Australia's COVID-19 experience, especially through changes in Australia's labour markets, delivery of services (including retail, health and education) and digital adoption.

4. Identify priority sectors for reform (including but not limited to data and digital innovation and workforce skills) and benchmark Australian priority sectors against international comparators to quantify the required improvement.

5. Examine the factors that may have affected productivity growth, including domestic and global factors and an assessment of the impact of major policy changes, if relevant.

6. Prioritise and quantify the benefit of potential policy changes to improve Australian economic performance and the wellbeing of Australians by supporting greater productivity growth to set out a roadmap for reform.

7. Revisit key recommendations and themes from the previous five yearly review in light of the above, where relevant.

The Commission should have regard to other current or recent reviews commissioned by Australian governments relating to Australia's productivity performance and include comparisons of Australia's productivity performance with other comparable countries. The Commission should support analysis with modelling where possible and qualitative analysis where data is not available, and this is appropriate.

2 Major issues and opportunities to improve productivity raised in this submission

The issues and opportunities to improve productivity below are based on:

- The documents provided and the issues within the documents.
- Important issues missed in the documents
- The Terms of Reference including market and non-market sectors, Identification of priority sectors for reform and examination of the factors that may have affected productivity growth
- Recent developments and documents.

Major issues and opportunities to improve productivity in this submission are outlined below, they are based on the submitters experience, ideas, beliefs and opportunities. Submission recommendations and opportunities are outlined in bold throughout this report in Sections 2 and 3.

2.1 Optimising investment growth opportunities

The productivity findings below are supported.

As discussed in Interim report no. 4 – September 2022 Finding 1.1 Subdued investment growth should be met with productivity-enhancing reforms Australia's subdued (non-mining) investment growth likely reflects a number of factors. To some extent, lower investment levels are the result of desirable developments, including structural shifts in the economy and changes in technology. Persistence of investment hurdle rates, despite falling borrowing costs over the past decade, suggest that risk perceptions may have also played a role. Broader policy reform aimed at making Australia's business environment more conducive to growth can promote investment. Productivityenhancing reforms that promote economic growth can improve returns to investment, further supporting productivity growth in the process.

As discussed in Interim report no. 4 – September 2022 Finding 2.1 Building economic resilience and productivity through openness to trade and investment Relative openness with regard to trade and foreign investment policy is conducive to productivity growth. Despite the presence of severe global economic uncertainty, Australia's productivity growth is best served by more exposure to the competition that comes with trade, more access to foreign direct investment, and a well-functioning rule-based system of global trade. Protectionism and industry assistance in the cause of 'self-reliance' would pose significant risks to productivity.

As discussed in Interim report no. 4 – September 2022 Finding 2.2 Global trade in services will be a significant development for Australia. As an advanced service-based economy, Australia has potential to benefit from the global increase in trade in services.

But maximising the opportunities will require consideration of not only trade policy, but also tax settings, occupational licensing, and migration settings.

2.2 Importance of both innovation and diffusion, not just diffusion

An approach based on innovation and diffusion is strongly supported, not just diffusion as outlined below. All industries and sectors are important.

America has a new AU$438 billion industrial policy (https://www.nytimes.com/2022/07/27/us/politics/senate-chips-china.html). As noted in the press. the US investment demonstrates industrial policy can span from new technologies through to incremental innovation and diffusion, through regional technology centres, manufacturing investment and science funding.

2.3 Optimising diffusion

The recommendation direction below is supported:

Pg 80. *Recommendation direction 3.3 Ideas that have large public good value should not be behind paywalls The Australian Government should: • look at new funding models for Standards Australia to reduce or eliminate the pricing of standards that have high public good value • require open-source publication of research principally funded by governments in line with recommendations in the Productivity Commission's inquiry into intellectual property • reform fair-use provisions in intellectual property regulations to adopt a principles-based fair use exception.*

Opportunities include:

- **There is little or no assessment of business productivity performance and methods for businesses to improve this. One option is to allow each business a one off claim of $2000 claim for performance and productivity assessment via ATO. This should include where information can be sourced from.**
- **Establish a Productivity Commission productivity and innovation performance scoring system for businesses to use and adapt to their business.**
- **A proactive measure would be for an organisation like the Productivity Commission to prepare broad and industry specific case studies on the advantages of innovation as well as the costs relevant to Australia, hopefully with Industry Association input, as well as industry specific case studies. This information would be put on the web. It would work even better if a way to distribute the information to each business.**
- **Issue alerts in regards to productivity and innovation opportunities.**
- **Establish a Productivity Commission approved training programs for businesses to use and adapt to their business.**
- **Encourage spread of innovation through state investment agencies, industry associations, regional development boards, growth centres, hubs and other groups.**
- **Undertake a SWOT analysis focussed on the diffusion of information issue.**

2.4 Optimising Australia's slow innovation and productivity growth

As discussed in Interim report no. 1 – July 2022 Insight 2.1 – Australia's productivity is growing at its lowest rate in 60 years, consistent with a broad-based slowdown in productivity growth among advanced economies.

This highlights that Australia needs to address all potential measures to increase productivity.

Global Innovation Index 2020 rankings Australia scored 23 rd in global rankings. Table 1.1 Heatmap: GII 2020 rankings overall and by pillar highlight Switzerland and then Sweden as the two highest ranked countries, Australia ranked 23 rd. Australia was ranked 9 in human capital and research, 22nd in infrastructure, 7 th in market sophistication, 26 th in business sophistication, 40 th in knowledge and technical outputs and 23 rd in creative outputs.
https://www.wipo.int/global_innovation_index/en/2020/

There are opportunities to learn from what Switzerland and Sweden are doing and how they are achieving these outcomes. Australian GDP is $1,364.8, Switzerland is $565.6 and Sweden is $563.9. Australia's bigger economic gives us more opportunity to increase productivity and innovation.

There are other opportunities for Australia to:

- **Review policies and settings to improve innovation and productivity settings.**
- **There is little or no assessment of business productivity performance and methods for businesses to improve this. One option is to allow each business a one off claim of $2000 claim for performance and productivity assessment via ATO. This should include where information can be sourced from.**
- **Establish a Productivity Commission productivity and innovation performance scoring system for businesses to use and adapt to their business.**
- **A proactive measure would be for an organisation like the Productivity Commission to prepare broad and industry specific case studies on the advantages of innovation as well as the costs relevant to Australia, hopefully with Industry Association input, as well as industry specific case studies. This information would be put on the web. It would work even better if a way to distribute the information to each business.**
- **Issue alerts in regards to productivity and innovation opportunities.**
- **Establish a Productivity Commission approved training programs for businesses to use and adapt to their business.**
- **Encourage spread of innovation through state investment agencies, industry associations, regional development boards, growth centres, hubs and other groups.**
- **Undertake a SWOT analysis focussed on the productivity issue.**

2.5 Addressing concerns in regards to the services sector productivity improvements

As discussed in Interim report no. 1 – July 2022 Insight 2.6 – Productivity growth in the goods sector is faster than in services. However, reflecting their diversity, the variation in growth rates across the services subsectors is substantial.

As discussed in Interim report no. 1 – July 2022 Insight 2.5 – Similar to other advanced economies, the services sector dominates the Australian economy. This reflects both the impact of higher incomes on consumer preferences, and the fact that productivity gains have been harder to secure in many service industries — making services relatively more expensive. Australia's industry structure also reflects our areas of comparative advantage (which for example, leads to a reliance on imported manufactured goods) and demographic factors such as an ageing population.

Pg 2. *As noted in the Commission's first interim report, The Key to Prosperity (PC 2022b), the Australian economy is increasingly dominated by the services sector.*

As discussed in Interim report no. 4 – September 2022 Box 2.6 – Australia's Services Exports Action Plan. The Department of Foreign Affairs and Trade (DFAT) were given $1.5 million to 'develop an industry-led initiative to address barriers to Australia's services exports and boost our services competitiveness' (DFAT 2021a, p. 17). The plan identified five macro-level outcomes that reflect the interests of Australia's services sector: • free and open international trade in services • best practice systems and rules across Australia • world class skills and talent • cutting edge and internationalised services in Australia • information-driven policies and business strategies. The action plan contains 72 recommendations, of which, the Australian Government has agreed to, agreed-in-principle or noted 64 and not agreed to 8.

It is disappointing that there was no detailed discussion in relation to Australia's Services Exports Action Plan and linkages to the Productivity Commission report. It is recommended that this should be teased out in the final report. It is also not clear if the new Labor government is committed to this report.

It is recommended that strengths, weaknesses, opportunities and threats should be undertaken in relation to productivity improvement in all industry sectors.

2.6 Maximising development of individual sectors and industries

As noted on Pg 2. *As noted in the Commission's first interim report, The Key to Prosperity (PC 2022b), the Australian economy is increasingly dominated by the services sector.*

Australia needs to turn this issue around.

Opportunities include:

- **Strengths, weaknesses, opportunities and threats exercises should be undertaken in relation to productivity improvement in all industry sectors.**
- **There needs to be improved coordination across each industry sector, using specialist industry working groups that all report to a central agency.**
- **There is little or no assessment of business productivity performance and methods for businesses to improve this. One option is to allow each business a one off claim of $2000 claim for performance and productivity assessment via ATO. This should include where information can be sourced from.**
- **Establish a Productivity Commission productivity and innovation scoring system for businesses to use and adapt to their business.**
- **The Productivity Commission to prepare broad and industry specific case studies on the advantages of innovation as well as the costs relevant to Australia, hopefully with Industry Association input, as well as industry specific case studies. This information would be put on the web. It would work even better if a way to distribute the information to each business.**
- **Establish a Productivity Commission approved training programs for businesses to use and adapt to their business.**
- **Trialling of alternative productivity, innovation and innovation policy settings should be encouraged and trialled, possibly in single industry sectors as a first stage.**
- **There appears to be no discussion of the Modern Manufacturing Initiative, an important initiative, this needs to be addressed.**
- **It is important to remember with little things, big things grow.**
- **Some examples of industry productivity improvement are outlined in this submission and in Annexure 1.**

2.7 Focus on supporting selected industry growth centres and industries likely at the expense of other industries

Growth industry support is always good, but it is unclear what of the sectors that aren't supported apart from the identified six sectors below. There is also huge potential in other sectors.

As also noted in the recent NSW Green Paper:

"Ultimately, industry policy seeks to lift productivity and promote industry competitiveness".

The Australian Government's Industry Growth Centres Initiatives support six key growth industry sectors through a mixture of strategic planning and coordination, funding and co-funding for industry-led collaboration and commercialisation projects, advisory, market access and delivery support. The six key growth industry sectors include Advanced Manufacturing, Cyber Security, Food and Agribusiness, Medical Technologies and Pharmaceuticals, Mining Equipment, Technology and Services (METS) and Oil, Gas and Energy Resources.

GVCs are likely to undergo major changes over the next decade due to new technologies and the impact, but also uncertainty from, recent geopolitical events, the pandemic and natural disasters. These changes will create opportunities for NSW businesses as well as risks that will have to be managed to increase resilience to demand and supply shocks.

We need to consider all the factors and support all industry growth for the reasons outlined below:

- **Our economy needs all the support it can get.**
- **Should the value of our commodity exports decline in the future, in particular iron ore and coal, we will be left with huge a gap that needs to be filled if we are to continue current appetite for imports.**
- **What happens if the 6 industry growth sectors above are tied in with over marketing to one market, and that market closes or is markedly reduced.**
- **There are missed industry opportunity areas as outlined in this submission and Annexure 1.**
- **If Australia again gets closed out of major markets through legal and illegal means.**
- **If a long war occurs.**

Industry growth industry can occur at times simply and easy. It is understood that 20 years ago Australian companies were advised by government officers about big upcoming increased demand for iron ore and advised to prepare for this. Most didn't listen, but Fortescue did and look where they are now to Australia's gain. Now they are generation huge opportunities in hydrogen and green energy.

There is a lesson here, we need to have and issue this advice regularly for each industry, preferably out of one department but coordinated across government, industry, business and research.

Potential strategic productivity opportunity areas are outlined in Annexure 1.

A classic Australian business that has developed very quickly is Fortescue and this is currently resulting in a mass of new business.

Surely the Fortescue success and vision can be used in case studies and training of other businesses.

2.8 Establishing innovation precincts is positive

Establishing innovation precincts is a tremendous way of increasing innovation.

Anchor tenants are important drivers of the success of innovation precincts according to a report by the NSW Innovation and Productivity Council which calls on the government to help anchors thrive. The Role of Anchors report (https://www.investment.nsw.gov.au/living-working-and-business/nsw-innovation-and-productivitycouncil/our-publications/role-of-anchors/) highlights lessons from innovation precincts across the world, as well as from several Australian examples. It outlines four common precinct principles that "help their anchors to thrive". Anchors can include larger businesses, universities, or hospitals that have significant influence over the local economy, community, and in creating a sense of place. They may create many local jobs, make large investment in research and development, promote commercialisation, create spinouts, facilitate knowledge transfer, and support the local supply chain. https://www.innovationaus.com/anchor-tenants-drive-innovation-precinct-success-report/

In establishing innovation precincts, it is essential to recognise that anchor tenants are important drivers of the success of innovation precincts.

2.9 Awareness that hubs are important component of increasing productivity

WA has introduced four innovation hubs.

https://www.innovationaus.com/bunbury-is-was-fourth-new-industries-innovation-hub/

These hubs include:

- WA Data Science Hub
- WA AustCyber Innovation Hub
- The MTPConnect WA Life Sciences Innovation Hub
- WA Creative Technology Innovation Hub

Innovation hubs such as these are recommended across Australia, funded through state and federal funding.

The National Forest Industries Plan includes an action to establish Regional Forestry Hubs. There are 11 regional forestry hubs established across Australia. Each Regional Forestry Hub has existing concentrations of wood supply resources; together with significant existing processing and/or manufacturing operations, established domestic and/or international transport links, and strong potential for growth. Each of the Hubs is working with industry, state and local governments, and other key stakeholders to undertake strategic planning, technical assessments and analyses to support growth in the forest industries in their region.

There needs to be continued support for the timber industry and regional forestry hubs. Working with industry and state governments to allow regional forestry hubs to maximise their capacity to accommodate plantation expansion in the right places as well as innovation and increased productivity.

2.10 Closing the gap to OECD peers

As discussed in Interim report no. 1 – July 2022 Insight 2.3 – Closing the productivity gap to our OECD peers requires working smarter so that Australia can have higher GDP per capita without having to work longer.

Opportunities raised in this submission need to all be considered and where agreed implemented.

There is little discussion in regards to value adding opportunities and lost productivity. There needs to be improved coordination across each industry sector, using specialist industry working groups that all report to a central agency and listing all value adding opportunities for each industry sector. This isn't that hard. Then circulating this information to each industry sector and business.

2.11 Improving non-integrated federal and state productivity management
It is agreed, the information on page 70 is supported in regards to establishing more cooperative models where governments agree to coordinate the activities that are best managed by each level of government. Surely this coordination can be worked through in the National Cabinet and the National Federation Reform Council play in such models and other relevant parties. A discussion paper on this would be the logical first step.

Then there needs to be improved coordination across each industry sector, using specialist industry working groups that all report to a central agency.

Pg 70. *Information request 3.1 National agreements between the Australian and state and territory governments are partly shaped by the power imbalance arising from the greater capacity of the Australian Government to raise revenue. A preferred model might be to have more cooperative models where governments agree to coordinate the activities that are best managed by each level of government. How could new models for cooperation between governments work and what role would national agreements, the National Cabinet, and the National Federation Reform Council play in such models?*

The states are doing great work in relation to development of innovation ecosystems as outlined in https://www.innovationaus.com/wa-maps-innovation-ecosystem-with-startup-database/

As noted in this article:

Western Australia's Minister for Innovation and ICT Stephen Dawson has launched an online platform documenting the state's early stage innovation ecosystem, although there are still gaps in the data. At the time of writing, the database (https://wa.dealroom.co/intro) catalogues more than 190 different funding rounds dating back to 2006 and around 460 businesses founded since 2000. This includes information on staffing numbers and the amount of capital raised. Metrics on the number of founders and startups produced from the state's tertiary education sector are also listed alongside information on top investors in the state's ecosystem. The Western Australian government is the fourth state to deploy the Dealroom platform, following Victoria, Queensland, and New South Wales. LaunchVic was the first to deploy the platform — which was founded in the Netherlands — in the southern hemisphere in September 2020. A spokesperson said that the Western Australian Department of Jobs, Technology, Science, and Innovation (JTSI) received positive feedback from counterparts in the state governments that have already deployed Dealroom.

It is recommended that innovation ecosystems be applied to all states and territories and applied federally to optimise gains in innovation and productivity.

NSW is developing a Modern Manufacturing Strategy, which will replace the 2018 Advanced Manufacturing Industry Development strategy. It is unclear if other states are implementing similar approaches.

It would be beneficial if all states undertake a state-wide modern manufacturing strategy and there is an overarching but flexible federal modern manufacturing strategy.

2.12 Effective use of collected data and optimising productivity
Australia's e-Government rank has slipped as noted in https://www.innovationaus.com/australia-slides-to-new-low-in-e-government-rankings/

In 2014, 2016 and 2018 Australia was second in the world, despite several high-profile technology failures like 2016 census, ATO outages and robodebt. In 2020 the UN dropped Australia to fifth. Now the nation has slipped to seventh.

As noted in Improving Innovation Indicators: Better Data to Track Innovation in Australia:

Pg 7. *Responsibility for Australia's innovation ecosystem, and for measuring its progress, is currently split across Australian, state and territory agencies. This makes the development of a national strategic approach for measuring innovation difficult and time consuming. There should be an appointment of a single entity with a whole-of-government remit to provide national leadership of innovation measurement and reporting.*

A single entity with a whole-of-government remit to provide national leadership of innovation measurement and reporting should be appointed. Measuring innovation well and report on it regularly means that Australia can optimise innovation and productivity.

Also as noted in Improving Innovation Indicators: Better Data to Track Innovation in Australia:

Recommendation 1.1: introduce annual innovation system reporting

It is recommended that annual innovation system reporting should be introduced into Australia.

As discussed in Interim report no. 1 – July 2022 Insight 2.9 – *The large volumes of data produced by our increasingly digitised and services oriented economy can be used to improve productivity. While there were good examples of effective data use during the COVID-19 response, Australia compares poorly internationally on use of data-driven technologies.*

One option to improve this would be the Productivity Commission to employ support officers to work with industry and industry groups to improve data management and productivity opportunities.

It would be good to identify the main industry sectors where they could use collected data to advantage.

The use of AI and analysis of collected data in individual industry sectors needs to be optimised.

2.13 Over reliance on major export markets in single countries does impact productivity
This is a big issue and does influence productivity and exports if Australia again gets closed out of major markets through legal and illegal means.

Suggest that over reliance on major export markets needs to be better addressed in the report.

2.14 Improving innovation and productivity training
There needs to be training in innovation in Australian businesses, universities and TAFE colleges.

2.15 Improving tax policy and regulatory reform
All these and other measures are supported.

Other measures are supported, including:

- **Introduce incentives and tax opportunities to optimise new timber industry investment.**
- **Introduce federal and state government incentives and tax breaks for undertaking sound and preferably cooperative prescribed burning across landscapes and all tenures.**
- **Implement key recommendations of the Menzies Centre report: including *Government funding should prioritise risk reduction which will reduce the need to spend on disaster recovery; Introduction of a National Bushfire Risk Rating (NBRR) system for all bushfire-prone communities, properties and structures; Introduction of a national approach to land use and building codes; Creation of an open access information platform comprising all data required for natural hazard management* and *Tax reform to improve affordability and increase uptake of insurance.***

2.16 Increasing Australian skills and productivity
As noted in SMH The most in-demand occupations revealed as skills shortage strikes more industries David Crowe October 5, 2022 — 10.30pm, key points:

- *With employers advertising 301,000 job vacancies in August, up by 37 per cent on the same month last year, the labour shortage is turning into a pressure point in the October 25 budget when the federal government is trying to negotiate a funding deal with the states.*
- *"The staggering jump in occupations listed reinforces the urgent need to tackle skills shortages," said Skills Minister Brendan O'Connor ahead of the release of the new figures from the National Skills Commission. O'Connor will meet his state counterparts in Melbourne on Friday to discuss a potential $3.7 billion funding agreement over five years, which the previous government could not finalise because of disagreements over how the states were expected to spend the money. The federal government expects to make progress on the five-year deal, but a final outcome is not expected. More progress is likely on the $1.1 billion agreement unveiled at the Jobs and Skills Summit last month to fund an extra 180,000 fee-free TAFE places.*
- *The annual skills priority list, to be released on Thursday, shows the number of occupations in shortage rose from 153 to 286 over the past year.*
- *While some occupations emerged from shortage over the year, the new report lists 129 occupations that were not in shortage in 2021 but were in shortage in 2022 because of the tight labour market.*

It is recommended that federal and state training needs be reviewed annually to reduce identified occupation shortages.

Industry needs to be involved in this training and contribute to training costs.

Increased business and skills migration is supported, it has worked in the past, why not the future, especially when we are losing talent overseas. Business and skills migration needs to be increased and these programs need to be more responsive to needs and reviewed annually. There needs to be a feedback mechanism between migration needs and training needs.

2.17 Addressing failures in research, science and declining productivity in many sectors
There are many areas of good research and science underway, this is accepted.

It is noted that research effectiveness isn't really addressed in the report.

The Australian 2016 National Research Infrastructure Roadmap key recommendations 2 and 3 were:

2. Establish a National Research Infrastructure Advisory Group to provide independent advice to Government on future planning and investment for a whole of government response to national research infrastructure. It should: • advise on priorities for national and global research infrastructure • make recommendations on landmark research infrastructure • review the existing national research infrastructure base to enhance, restructure, re-engineer or terminate existing activity • monitor progress and provide an annual update on awareness raising, including case studies, to promote further engagement • update the ten-year vision of the roadmap every five years.

3. Develop a Roadmap Investment Plan that will actively engage with all levels of the Australian Government and state and territory governments, universities, industry, philanthropists, research institutions and research agencies. The investment plan must take a portfolio based approach and consider the business case for focus areas including analysis of funding sources for capital and operational needs, access rules, outreach programs and international engagement.

The establishment of a National Research Infrastructure Advisory Group is supported.

The development of a Roadmap Investment Plan is supported, preferably driven by government and industry to avoid research and science that is not in the national interest nor meet industry needs.

It is important that funding is directed to productive research that meets the needs of the nation.

In relation to Innovation and Science Australia 2017, Australia 2030: prosperity through innovation, Australian Government, Canberra, **Imperative Number 2, 3 and 5 recommendations are supported i.e. recommendations under those three areas.**

It is the submitters opinion that there are major concerns in relation to research, science and national productivity/ value for money as outlined below:

- **It is my belief that much of current research wouldn't pass a sound national interest test. A lot of research doesn't assist with either innovation or productivity, if you have time look at all the ARC grants and research awarded over the last few years and apply a logical national interest approach to all of them. There has been a lot of press re this and even asking why researchers need to undertake an NIT.**
- **It is recommended that it is time for a stronger national interest test to be applied and research assessed by an agency independent of ARC.**
- **There should be an additional separate test in Australia for an Industry (or Sector) Need and Support Test (INST) for all proposed research, a simple one page test. This would assist in ensuring research is awarded to those projects that will most likely provide for Australia's future.**
- **A separate test could be a cost to benefit test or value test in terms of economics for all planned research.**
- **However, as a test of research effectiveness and contribution to national productivity, cost to benefit tests could be applied on all completed research over the last 10 years and how the research benefited Australia and Australian productivity. All infrastructure projects go through these reviews. A business would think this way and ask/ question the value of completed research to the business, why shouldn't universities be any different.**
- **There is an massive opportunity to increase research effectiveness in Australia utilising research assessed/ supported by industry and where industry seeks the targeted research it needs.**
- **There is a major need for a National Office of Research Integrity in Australia. It is understood that there is an integrity section under ARC and Health research, but they are within these agencies. It is suggested that this isn't that independent.**
- **There is a fair amount of activism across Australian universities in regards to anti forestry, climate change, reef research, anti-prescribed burning and this in a number of cases is impacting on Australia's productivity. In many cases, this is work similar to conservation groups and occasionally actions are completed cooperatively. It is important to ascertain the extent of government funding of such research and its impacts on productivity. It is also important to ascertain to what extent activism is allowed on Australian universities.**
- **In many cases, there is poor take up of completed research in regards to prescribed burning and chronic eucalypt decline affecting huge areas of Australia's forests. This is impacting the health of forests and fire hazard and meanwhile, more research is underway to solve "the problem". What is needed is adaptive land and fire management. I am happy to discuss this further with a Productivity Commission Officer.**
- **The subject of peer review is another issue, partly relevant to productivity. The status of scientific papers and peer review is being questioned more and more, refer to web sites that review issues such as retractions.**

Research and productivity is an area in urgent need of review. This could be undertaken by Auditor General in conjunction with the Productivity Commission.

2.18 Increasing focus on regional development and employment
Regional development doesn't appear to be adequately addressed in the report. It is suggested that the report needs to better address this matter.

A very pleasing development is in NSW where applications are now open for the $110 million Regional Investment Activation Fund. This has been developed to drive investment in key industries and priority locations across regional NSW. The fund co-invests with eligible businesses in catalytic projects that will deliver significant economic, social and/or environmental benefits for a priority industry or location.

It is recommended that regional investment funds be established in all states.

There are calls for a 10-year Victorian Manufacturing Strategy and a $500 million credit scheme for manufacturing, sustainability, and high-tech businesses. Source: Brendon Howe InnovationAus 22 September 2022.

A 10-year Victorian Manufacturing Strategy and a $500 million credit scheme for manufacturing, sustainability, and high-tech businesses are among the Victorian Chamber of Commerce and Industry's recommendations ahead of the state election in November. The 61 recommendations are included in the Victorian Chamber of Commerce and Industry's (VCCI) election platform (https://www.victorianchamber.com.au/policy-and-advocacy/initiatives/poweringvic) which was informed by a survey of around 1,000 members.

America's new AU$438 billion industrial policy (https://www.nytimes.com/2022/07/27/us/politics/senate-chips-china.html) is providing for **regional technology centres, which is great option for Australia.**

A not so pleasing regional development, employment and social outcome is outlined in Timberbiz on 7 October 2022, details below with huge ongoing social impacts:

The Andrew's Government's Victorian Forestry Plan launched in 2019, calls for the transition from native forest timber by 2030 and from that date the log shortfall is supposed to be sourced from plantations. This exit in 2030 provides insufficient time to establish replacement plantations that typically take 30 years to mature. Since the announcement in 2019 little has been achieved apart from the odd 'announcement'.

The 2030 exit also unfortunately coincides with the proposed closure of Yallourn Power Station in 2028 (with the loss of 1,000 direct jobs) and eminent closure of other Latrobe Valley power stations (all up about 10,000 direct plus indirect jobs at risk). Over the last decade employment in Latrobe LGA has declined by about 4,500 jobs following the closure of Hazelwood and Morwell power facilities plus Morwell Hardwood and Softwood sawmills.

The 'Forestry Plan' lacks rigorous strategic analysis of the adverse socioeconomic impacts on rural Communities caused by exiting native forest log supply. The Plan also ignores the triple impact of the native forest exit coinciding with closure of the coal fired power industry and diminishing scale economies in agriculture caused by the Forestry Plan's call for the new plantations to be on farmland.

Surely there are productivity and social learnings from this case.

Other opportunities include:

- **Increasing establishment of timber plantations is important not just for Australia's timber needs, for value adding, for exports, for regional industries and employment. It is essential to increase greenhouse gas capture. It's time for government to push the levers to increase plantation expansion rapidly and dramatically, it has stalled.**
- **A strong regional infrastructure industry is important for increasing productivity in Australia, including road, rail, flood and other infrastructure and reduces impacts of disasters (floods).**
- **A strong regional defence industry is important in protecting Australia and scattering industries across Australia for development and safety reasons.**

2.19 Assessing broad industry opportunities to improve productivity

Table 1 assesses the productivity benefits from both continuing and increased investment in five industry sectors as an exercise to better understand opportunities.

Table 1. Assessment of productivity benefits from both continuing and increased investment in **five industry sectors.**

Y = Productive industry benefit for states and Australia.

YY = Highly productive industry benefit for states and Australia.

YYY = Highly significant productive industry benefit with states, Australian and international benefits.

Industry benefit	Industry opportunity Timber plantations	Industry opportunity Native forest harvesting+manuf	Industry opportunity landscape burning	Industry opportunity Disaster mgt	Industry opportunity Infrastructure
1 Productivity	YY	Y	Y	Y	Y
2 Competitiveness	YYY	Y	Y	YY	YY
3 Regional development	YYY	Y	Y	Y	YY
4 Employment	YY	Y	Y	Y	YY
5 Increased export/ reduced import	YY	Y	Y		
6 Value adding	YYY	Y	Y		Y
7 Managing a reducing risk	Y	Y	Y	YY	Y
8 Protection	Y	Y	Y	Y	Y
9 Net zero gains	YYY	Y	Y	Y	Y
10 Supply benefits	YYY	Y	Y	Y	Y
11 Healthy resilient forests	Y	Y	YY	Y	
12 Productive use and salvage	Y	Y	Y	Y	

Considering the constraints, opportunities and key required government support areas above, there are big opportunities for states and Australia for all five industry opportunity sectors.

The importance of plantation forestry should be recognised, as an additional Growth Industry sector, due to its importance in relation to productivity, competitiveness, regional development, employment, increased export/ reduced import, value adding and in meeting net zero and timber supply constraints.

2.20 Increasing productivity, value adding, reducing imports and expanding exports in the forestry industry

Refer Annexures 1 for a detailed examination of these issues.

In relation to Annexure 1, key areas required to further increase Australia's timber plantation productivity include:

1. **Adequately recognise the importance of plantation forestry as an additional Growth Industry sector due to its importance in relation to productivity, competitiveness, regional development, employment, increased export/ reduced import, value adding and in meeting net zero and timber supply constraints.**
2. **Recognise the value adding opportunities of plantation timber products in Australia before export, hopefully over the broad range of timber products.**
3. **Dramatically expand the plantation estate, further increasing greenhouse gas capture, meeting Australian government requirements for an expanded timber industry. According to an April 2022 interim report by Forest and Wood Products Australia (FWPA) Australia's housing construction sector will face a critical timber shortage with an ever-increasing reliance on imported timber doubling by 2050 if Australia falls short of its plan to plant an additional One Billion Production Trees. Source: *Timberbiz***
4. **Address plantation supply constraints.**
5. **Remove barriers to plantation forestry establishment, including the complex regulatory environment.**
6. **Ensure plantation forestry is adequately protected from bushfires as critical infrastructure utilising landscape prescribed burning.**
7. **Explore incentives and tax opportunities to optimise new timber industry investment.**
8. **Complete the National Forest Industries Plan to secure a strong, sustainable forestry industry.**
9. **Continue support for the timber industry of regional forestry hubs. Working with industry and state governments to allow regional forestry hubs to maximise their capacity to accommodate plantation expansion in the right places**
10. **Work with industry to help farmers explore opportunities for: expanding farm forestry creating future wood and fibre supplies, improving linkages with the forestry industries, increasing economic returns for farmers. Working with state/territory governments, private native forest owners and interested Indigenous communities to unlock potential timber supply, and to deliver economic returns to landowners**
11. **Undertake further review of the water requirements in the Emissions Reduction Fund (ERF) farm forestry and plantation methodologies to enable forestry to fully participate in the ERF**
12. **Review other legislation, policies and processes that may be unintentionally restricting plantation expansion.**
13. **Develop more timber markets and products here in Australia, including sawn products, cross laminated timber, glue laminated timber, fibreboard, fibre, pulp/ paper, packaging, veneers, biofuel/ densified pellets/ biomass pellets, bioenergy, other engineered wood products, nanocellulose, wood composites, wood plastic composites and lignin products. Bioenergy involves using carbon-rich waste to produce heat and electricity. The energy produced can be cheap, abundant and reliable and as with other renewable energies, power and heat from bioenergy is generated closer to where the energy and heat is used. With bio-engineering it can produce chemicals, fuels, synthetic rubber, cosmetics, detergents and textiles.**
14. **Setting up industries that can rely on variable intake of product, both in conjunction with existing industry and separate, such as if there is excess plantation timber, where timber parcel sales occur, where there are value adding opportunities, where market opportunities allow or where export markets reduce.**
15. **Explore opportunities to further optimise salvage of burnt timber plantations for products, increasing salvage returns, reducing reestablishment costs and reducing time to replant. This includes interstate/ regional agreements for large plantation bushfire impacts and optimising products from bush fire salvage, salvaging standing timber well after the first year after bushfires. This also includes using salvage opportunities with biomass pellets in Australia and for export, including for longer periods after bushfires. This includes transporting and using more bushfire impacted plantation timber across borders/ from other timber areas, increasing salvage of burnt plantation timber following major bushfire events.**
16. **Improve timber salvage technology to store salvaged plantation timber over greater than 1 year, up to 5 years, as I understand this was achieved in the South Australian Mt Gambier 1984 bushfires with P radiata. This was achieved using water spaying and storage in water, water spraying is likely a better option.**
17. **Continue to resolve supply constraints in the timber industry, including plantations. The current supply constraint inquiry is applicable. Increasing plantations in Australia is an important opportunity and will greatly assist in supplying timber to Australian markets and for export.**
18. **Continue to promote the advantages of embodied emissions of the materials used to construct buildings, timber appears to be an attractive option, since according to many studies it can achieve less embodied and operational emissions in comparison to concrete and steel. In addition, the prefabrication of timber components with precision can deliver a highly efficient building envelope that improves insulation, saves on heating and cooling and minimizes thermal bridging.**
19. **Continue expansion in using timber in the construction of tall buildings, bridges and other major projects.**

Key areas required to further increase Australia's native forest productivity include:

1. **Native forest harvesting, manufacturing and sale of products is an industry it itself and should be classified as that. Surely this is a better approach that bringing in timber from overseas rainforests.**
2. **Dedicate the remaining State Forests so that they cannot be revoked to other lands and is locked in for timber production.**
3. **Expansion of biofuel and pellets industry using waste products, where industry has certainty of supply.**

4. **Large and high timber buildings is a growth area in itself and embodies a lot of carbon, this industry needs to be protected.**
5. **Reduce bushfire impacts across landscapes maximising ecological maintenance and cultural burning over the landscape, reducing consequent bushfires and reducing applied total or partial restrictions on harvesting.**
6. **Increase Government listening to land management/ fire experts.**
7. **Reduce fuel loads and understand and accept the principle than eucalypt forests are denser and also have a lot more fuel than at first contact due to miniscule ecological maintenance and cultural burning over the landscapes. Fuels include biomass, ground fuels and ladder fuels.**
8. **Use thinning is an important component of maintaining resilient forests as the US and US Forest Service have done.**
9. **Optimise low intensity ecological maintenance and cultural burning across landscapes as an important component of maintaining resilient and healthy forests, again as the US and US Forest Service have done. Application across all forest areas, increasing forest health and community safety.**

There are significant issues to work through here in order to maximise Australia's timber productivity.

2.21 Failures in disaster management, lost productivity and productivity improvement opportunities

There have been many disasters across Australia. There are many management economic reform and productivity opportunities across the spectrum of mitigation, prevention, suppression and recovery, particularly in regards to flood issues and bushfires. Some of these opportunities are outlined below:

1. **Implement cost effective opportunities as identified by Deloitte Access Economics (2013), "Building Our Nation's Resilience to Natural Disasters" for the Australian Business Roundtable for Disaster Resilience and Safer Communities. They note that building more resilient housing in high risk bushfire areas generates a Benefit to Cost Ratio (BCR) of around 1.4; improved vegetation management (around houses) a BCR of around 1.3, and undergrounding electricity wires results in a BCR of up to 3.1.**
2. **Implement key recommendations of the Menzies Centre report: including *Government funding should prioritise risk reduction which will reduce the need to spend on disaster recovery; Introduction of a National Bushfire Risk Rating (NBRR) system for all bushfire-prone communities, properties and structures; Introduction of a national approach to land use and building codes; Creation of an open access information platform comprising all data required for natural hazard management* and *Tax reform to improve affordability and increase uptake of insurance.***
3. **Undertake economic investigations of the "lock up and leave it" approach to fire management in Australia that is contributing to high and explosive fuel loads and inaction in regards to the creation and maintenance of Australian resilient, low fuel and healthy landscapes over all forested areas. Both issues are major factors in regards to why intense bushfires are occurring.**
4. **Address opportunities to reduce insurance premiums, governments at all levels/ communities/ businesses working with the insurance industry on ways to achieve this.**
5. **Undertake federal and state biannual Auditor General audits of bushfire and flood management cost effectiveness and value for money, any suppression overfocus, prescribed burning management, prescribed burning targets, fuel loads, forest health, landscape resilience and fire fighter, community safety and financial management. A first step would be federal audits of each state.**
6. **Complete an independent Commonwealth/ all state review of the economic and social impacts, costs and missed opportunities associated with bureaucratic and regulatory bushfire requirements, rules and barriers that apply to bushfire management and prescribed burning. This review should include avoiding the huge combined bushfire impacts on communities, individuals, fire fighters, infrastructure, forest, fauna, water quality, waterways, fish, greenhouse gas generation, air quality and heritage sites by an experienced independent fire officer, the combination of all these impacts is huge in social, economic and environmental terms.**

2.22 Understanding that the infrastructure industry is an opportunity

Infrastructure is a critical industry for increasing productivity in Australia but often not considered as an industry. Road, rail, flood and other infrastructure plays a critical part is optimising productivity in Australia. It results in increased productivity, competitiveness, assists in regional reduces social, environmental and economic risks, reduces disasters (floods) and increases employment.

Critical constraints to the industry.

1. Infrastructure isn't inadequately considered as an industry. Infrastructure is a critical industry for increasing productivity in Australia. Road, rail, flood and other infrastructure plays a critical part is optimising productivity in Australia. It is suggested that infrastructure is treated as a growth industry. It results in increased productivity, competitiveness, assists in regional reduces social, environmental and economic risks, reduces disasters (floods) and increases employment.

Opportunity areas for the industry.

1. **Infrastructure is a critical industry for increasing productivity in Australia. Road, rail, flood and other infrastructure plays a critical part is optimising productivity in Australia. It results in increased productivity, competitiveness, assists in regional reduces social, environmental and economic risks, reduces disasters (floods) and increases employment.**

Key required government support.

1. Infrastructure is included as an growth industry. Road, rail, flood and other infrastructure plays a critical part is optimising productivity in Australia. It results in increased productivity, competitiveness, assists in regional reduces social, environmental and economic risks, reduces disasters (floods) and increases employment.

2. Increased funding provided for flood mitigation, reducing economic and social impacts of flooding.

2.23 Infrastructure Australia, Infrastructure establishment and loss, particularly in bushfires and floods

From the Pathway to Infrastructure Resilience research project, Infrastructure Australia have delivered two papers:

- Advisory Paper 1: Opportunities for systemic change – identifies 10 directions for transformational and systemic change in infrastructure planning to achieve infrastructure for resilience.
- Advisory Paper 2: Guidance for asset owners and operators in the short term- identifies a series short-term actions for asset owners and operators as the first steps towards this change.

As outlined in Infrastructure Australia, 2021, Pathway to Infrastructure Resilience Advisory Paper 1: Opportunities for systemic change, August:

Our vision is that future Australian communities be able to anticipate, resist, absorb, recover, transform and thrive in response to shocks and stresses, to realise positive economic, social and environmental outcomes. A major finding of this research is that achieving resilience requires a shift in focus from the resilience of assets themselves, to the contribution of assets to the resilience of the system – what we call infrastructure for resilience. This approach requires consideration not only of how to strengthen the asset, network and sector, but also how to strengthen the place, precinct, city, and region that the infrastructure operates within. It requires considering the role of each asset within the broader network and/or system and a shift from individual to shared responsibility.

As outlined in Infrastructure Australia, 2021, A Pathway to Infrastructure Resilience Advisory Paper 2: Guidance for asset owners and operators in the short term, August:

The paper outlines best practice guidance suggested as an embarkation point for investigation by each owner and operator specific to their own circumstances. In applying the guidance, asset owners and operators will need to develop their own implementation plan. The guidance supports asset owners and operators in considering the resilience of their assets within the broader system that they operate, including their relationships with other operators and communities.

- to that end, the guidance encourages asset owners and operators to establish a shared understanding of: – the role of assets in the delivery of essential services – critical interdependencies between assets (of the same network and others) – vulnerability to likely shocks and stresses
- collaboration across sectors, with community, and the Australian, state, territory and local governments, and
- capabilities to support understanding and collaboration across the system.

The two documents are good initiatives, saying that there are major concern areas. There are a number of concerns in regards to bushfires, landscapes and infrastructure that are raise in good faith, including:

1. **There are serious limitations on infrastructure outcomes under current bushfire approaches in southern Australia on the ground, bureaucratic bushfire systems, inadequate annual bushfire review systems and very low levels of landscape ecological maintenance burning (prescribed burning) in southern Australia. The fuel loads across landscapes are extremely high. My concerns with bushfire management in Australia are outlined further below, and infrastructure isn't safe in southern Australia.**
2. **If we don't get the higher level state/ local government basic bushfire systems and approaches right to address bushfire risks and complete adequate ecological maintenance burning across landscapes, achieving the aims of these two documents isn't going to work effectively. Just look at the level of fuel loads in southern Australia, miniscule ecological maintenance burning and declining forest health and more giga fires to come.**
3. The assets can work together, sure, but the State and Federal systems need to be optimal in regards to bushfire management for the proposed approach in these documents to work.
4. Under the proposed approach, it is suggested that there will be serious gaps in strengthening asset resilience, some areas may strengthen bushfire resilience, but areas may be to the north south east and west will likely not and a landscape bushfire will undo any good work in one or two smaller areas. **A landscape approach to bushfire management is critical for the success of the approaches in these two documents.** Refer to the information below in regards to bushfire spread of two bushfires, one in 2009 and one in 2020.
5. Infrastructure Australia needs to look at the house losses in towns and cities over the last 50 years, including the fires in 2019/ 20 across Australia, 2016 in Yarloop, 2009 in Victoria, 2003 in the ACT, 1967 in Tasmania, 1939 in Victoria and NSW. There are systemic issues in regards to town and city protection, including high fuel loads across landscapes. Trying to solve issues in one area is not going to work effectively.
6. **Development of community bushfire protection plans is a better way to go, at least as a first step. Approaches like Fire Adapted Communities learning Network, 2016, Fire Adapted Communities, FAC Self-Assessment Tool (FAC SAT), USA Ready Set Go Firewise, Fire Safe Councils and other US initiatives to reduce bushfire risk, the Canadian FireSmart program (community awareness and education) and use of a Community Wildfire Protection Plan as in many towns and cities in the USA. Australia has small programs such as Fire Safe WA. Town and city safety is addressed in fairly generic Local Bushfire Risk Management Plans with limited community involvement.**
7. It is unclear what Advisory Paper 2 covers in relation to Housing, whether native forests and plantations are covered, at a time the industry are under threat from bushfires, environmental claims, supply shortages, export bans and other issues. It is suggested that a Pathway to Infrastructure Resilience Advisory Paper 2 is pretty ordinary in regards to Housing/ Forestry.
8. Timber supply is the critical issue and needs much more critical assessment. The timber supply industry is under threat from inadequate planting, poor forward planning, inadequate support from government, bushfires, environmental claims, government pandering to the green votes in some governments, supply shortages, export bans and other issues. A number of these issues relate to government (State mainly but Federal as well) and inadequate protection of forests and

forestry and now timber shortage is a very big issue, restricting the economy. The timber assets should really be ranked critical infrastructure at a federal and state level.

2.24 Addressing the importance of sound national defence and defence industry productivity and
As noted in the article:

https://www.innovationaus.com/defence-manufacturing-worth-1-6bn-to-australia/

The Defence industry was worth $8.88 billion to the Australian economy in financial year 2020-21, of which around 18 per cent was contributed directly through manufacturing. This is according to the Australian Bureau of Statistic's first official estimates of the Australian Defence Industry Account (https://www.abs.gov.au/statistics/economy/national-accounts/australian-defence-industry-account-experimental-estimates/2020- 21). Only the production of goods and services invoiced and supplied directly to the Department of Defence are included in this measure. It is measured in gross value add (GVA), which is the additional economic value from the new products or service provision when the costs of intermediate inputs are removed. Defence value add is dominated by the provision of professional, scientific, and technical services, which accounts for 41.4 per cent of value added or $3.68 billion. This is followed by manufacturing at $1.64 billion and construction at $1.32 billion. Overall, the defence industry made up 0.46 per cent of national GVA in financial year 2020-21. It was also 5.7 per cent larger than in 2019-20.

Australian national defence industry is a national industry that must be looked after and expanded. The Australian national defence industry is critical for a lot of reasons, including local and regional supply in wartime, national productivity, national defence, regional employment, regional development and exports. The types of industry with expanded development should include unmanned subs, unmanned vehicles, unmanned boats, small unmanned timber boats like PT boats, missiles, defensive technology, munitions, radar, communications, robotics and other areas where scale isn't insurmountable and there are huge opportunities.

If we can't defend ourselves with our partners, there is less need to be concerned re productivity.

2.25 Decarbonising the economy to net zero
As discussed in Interim report no. 1 – July 2022 Pg 49 The challenges of climate change and decarbonising the economy:
These costs need to be balanced against the benefits of decarbonising the economy in line with Australia's commitment to net zero emissions by 2050. The policy challenge is to ensure that the process of decarbonisation is undertaken in the most cost effective way.

This is agreed. **There are also export opportunities such as electricity cables to Singapore, this will happen in the future and has been looked at. There are huge opportunities to develop and expand businesses such as the University of Sydney spinout Gelion.** This business *has launched its first battery storage production plant and will begin production with an annual capacity of 2MWh worth of batteries. The production line was launched in partnership with Battery Energy and is based at its existing lead-acid manufacturing facility in Western Sydney. Manufacturing the novel gel-based zinc bromide 'Endure' battery — each unit of which can store 6-12 hours of renewable energy — is said to use 70 per cent of the existing lead-acid battery production process. The modular battery can be deployed at a small or a large scale to support renewable energy farms, in industrial settings, or on a grid scale using a containerised solution, similar to a Tesla big battery. For a ballpark reference, the production line's current annual capacity of 2MWh would be sufficient to support a 30MW solar plant, according to Gelion chief executive Hannah McCaughey. Future plans to scale Gelion's production will not take place at the facility in Western Sydney. "We absolutely have ambition to scale. We have the know how to scale, we've developed the industrial IP to scale, and we're actively working on that now," Ms McCaughey said. https://www.innovationaus.com/usyd-spinout-launches-first-battery-storage-production-line/*

As discussed in Interim report no. 1 – July 2022 Insight 2.12 — *Climate change presents risks to the Australian economy, especially for industries that utilise the environment as a key input. Selecting forms of abatement and mitigation to cost effectively achieve Australia's net zero by 2050 commitment will be challenging given the inherent uncertainty about future technological breakthroughs.*

Agreed, but businesses will lead much of the way on this and we as a country will work it through.

As discussed in Interim report no. 4 – September 2022 Finding 3.4 *An efficient abatement path prioritises least cost abatement options before higher cost abatement options are pursued Setting a long-run emissions target does not mean that all emissions sources need to be reduced at the same time. Pursuing low-cost abatement options before proceeding to higher cost options provides time for innovation to reduce the cost of those higher costs options before they need to be pursued. Broadbased emissions pricing schemes can be an efficient way of ordering abatement actions in this way.*

Agreed generally.

As discussed in Interim report no. 4 – September 2022 Finding 3.6 *Reforms could move Australia toward a lower cost approach to abatement with reduced adverse impacts on productivity Australia's current suite of implicit carbon prices is an inefficient approach to climate policy. The Australian experience with carbon pricing has resulted in a suite of alternative policies that impose a wide range of indirect carbon prices on the economy. Reforming Australia's Safeguard Mechanism to broaden its application across the economy and allow transferability of emissions between emissions sources could allow Australia to transition away from higher cost measures. Recognising offsets that are not additional, measurable, and permanent, will weigh on the effectiveness of the Safeguard Mechanism, and increase the cost of emissions abatement in Australia.*

Agreed generally.

As discussed in Interim report no. 4 – September 2022 Finding 3.7 *Policy coordination between the Commonwealth and the States will increase the efficiency of Australian emissions abatement Maximising the efficiency of Australian emissions abatement requires*

that Commonwealth, State, and local governments take a coordinated approach to policy development. Good practice would include stipulating whether existing or proposed policies are 'complementary measures' or whether they are intended to drive abatement in facilities and sectors not covered by the Safeguard Mechanism. The expected implicit carbon price of these policy measures should be independently estimated and made public.

Agreed.

Increasing establishment of timber plantations is important not just for Australia's timber needs, for value adding, for exports, for regional industries and employment. Increasing establishment of timber plantations is essential to increase CO2 greenhouse gas capture. Its time for government to push the levers to increase plantation expansion rapidly and dramatically, it has stalled.

2.26 Pandering for votes is reducing productivity
This area has huge costs in regards to Australian, at times greatly affecting productivity by both actions and inaction.

Short term political pandering is happening more and more, most often without the backing of sound science nor reason, at times this has had large costs on Australia's productivity, often in regions.

A lot of land and forests is being locked up, not managed under adaptive management, and big intense bushfires soon come along. Is this productive use of land you could ask, I suggest not.

The USA is way ahead of Australia in regards to adaptive land management and setting up and managing resilient landscapes. Because Australia is more and more locked up in green wash, these same landscapes will continue to burn hot.

2.27 Addressing over regulated government, policy and legislation reducing productivity
This is well known and is a major factor in declining productivity across the nation.

It would be beneficial for the Productivity Commission and Australia to understand the extent of regulatory and other barriers within each industry sector across Australia and revise policy and settings in light of policy.

Extensive licence and permit conditions further increase the difficulty and complexity of managing.

It would be opportune for the Productivity Commission to review this area and consider options where federal and states don't address the above issues and increase productivity. One option could be funding redistribution.

2.28 Addressing the large costs and requirements of regulation and environmental approvals reducing productivity
There are large added costs in relation to financial and time burdens, particularly in regards to state planning approval conditions. Many of these conditions are very expensive and don't add value.

It is recommended that the Productivity Commission review/ audit approval conditions for approved projects in each state and territory, including impacts on productivity.

There are also permits and licences issued by regulatory agencies in addition to major approvals. Over regulation of forestry is another good example, including EPA and NRC oversight of native forestry harvesting to an extreme level. One obvious example is the loss of hollow bearing trees, millions and millions in the 2019/ 20 bushfires. Yet the tape measure comes out for very low level breeches and prosecutions occur. Surely there is a better way than this.

A Productivity Commission review/ audit review is warranted in relation to permit and licence conditions, including impacts on productivity.

Offsets in relation to biodiversity in many cases adds up to huge costs in getting project approvals, over many many years. It gets much harder when both state and federal agencies are involved. Offsetting is important, but it needs to be on a financially sound basis and not influenced by the applicable biodiversity agency/ies under poacher/ gamekeeper roles.

Another sector over regulated is the state forestry native forestry sector. The extent of regulatory agency oversight is an issue that needs to be examined by the Productivity Commission, it is way over the top by many agencies.

The EPBC review is going to increase regulatory oversight and further reduction is the federal Threatened Species Scientific Committee. It recently listed 18 threatened fire regimes across the whole of Australia, the authors opinion that this will very likely reduce prescribed burning even further than around 1 % of forested areas of southern Australia, resulting in ongoing disastrous bushfires. Many organisations, farmers, landholders and managers will consider the risks of undertaking prescribed burning and not burn, dramatically increasing large intense bushfires across Australia. At times, new threatened species documents aren't widely advertised so that all concerned/ applicable groups can comment. Coordinated comments and actioning by the Committee/ agency is not provided on the web, so no one or few in the public has any insight if comments or concerns have been addressed or not.

In terms of powers and productivity, it is recommended that a productivity impact review of federal and state environmental legislation/ regulation and agency powers be undertaken, including the federal Threatened Species Scientific Committee.

2.29 Addressing the large barriers to productivity improvement
Tt would be beneficial for the Productivity Commission to understand the extent of regulatory barriers to prescribed burning across Australia. The extent of barriers is outlined in an article using the attached link.

https://arr.news/2022/03/07/effective-low-intensity-burning-barriers-and-opportunities-john-odonnell/

Barriers to productivity improvement is an important exercise that needs to be undertaken by the Productivity Commission.

2.30 Increasing inadequate use of productivity scorecards

NSW uses a productivity scorecard. NSW Innovation and Productivity Council 2022, 2022 NSW Innovation and Productivity Scorecard: Benchmarking our performance, Council Research Paper, Sydney in the Newsletter. Considering the opportunities above and the scorecard, there are opportunities to improve industry productivity and better assess performance. Some comments on the document are outlined below:

There are potential innovation opportunity areas to improve scoring in regards to manufacturing and industry, regional development, hubs, agriculture, forestry, infrastructure, disaster management and research effectiveness.

Saying all that, it is recommended that productivity scorecards be trialled across Australia.

2.31 Addressing the inadequate involvement of Auditor Generals in auditing productivity

It is the authors belief that **there is inadequate Auditor General auditing of government agencies in regards to productivity, cost effectiveness and value for money approach across state and federal governments. A first step could be federal audits of each state government's productivity management.**

3. Interim Report 3 Issues raised in this submission

Comments and suggestions are raised below in relation to Interim Report 3.

Pg 1. *Many Australian businesses undertake little or no assessment of their performance, and overall management capability — a critical determinant of adoption of best practice — appears to be weak for a large share of businesses, and significantly worse on average compared with the United States.*

Risk management approaches, incentives and alternative tax approaches need to be explored to change this culture.

One option is to allow a one off claim of $2000 to claim for small businesses to undertake a performance and productivity assessment and claim this via ATO.

Pg 2. *In Australia, innovation policy has tended to give pre-eminence to interventions that foster the creation of novel productivity-enhancing ideas and technologies in selective parts of the business sector, including by leveraging the frontier research expertise in universities. Policies oriented towards novel innovation can be important for productivity growth, though are often inadequately tested for their appropriateness, effectiveness and overall benefits.*

In regards to the first sentence, this is important and can't be ignored. But the focus on research in universities needs to be reviewed. There are large opportunities for businesses to undertake their own research, either individually or as a group and definitely control where the research is directed. This needs to be progressed with each industry sector

In regards to the second sentence, all current innovation and productivity policies need to be reviewed, with industry innovation and productivity working groups set up for each industry sector to progress innovation and productivity opportunities.

Pg 6. *Most Australian businesses do not introduce new or significantly improved products or processes (the usual measure of innovation). For example, in the two years ending mid-2021, almost 80 per cent of Australian businesses did not introduce any (significant) new good or service, and over 60 per cent did not introduce a new process (ABS 2022c). And far fewer Australian businesses are at the global frontier in respect to innovation — over the same period, more than 98 percent of businesses did not introduce any goods or services that were new to the world and almost 99 per cent did not introduce any processes that were new to the world.*

These figures are a major concern restricting innovation and productivity. A proactive measure here would be for an organisation like the Productivity Commission could prepare case studies on the advantages of innovation as well as the costs relevant to Australia, hopefully with Industry Association input. This information would be put on the web. It would work even better if there is a way was found to distribute the information to each business.

Figure 1.2 – Most Australian business innovations are only new to the firm, Product and process innovation, 2 years ending June 2021

A good option would be to establish a Productivity Commission scoring system for businesses to use and adapt to their business.

Pg 7. "*Firms using advanced management practices have been shown to be more productive across a broad range of countries (Bloom, Sadun and Van Reenen 2017, pp. 16–17; Bloom and Van Reenen 2007, pp. 1368–1371; Criscuolo et al. 2021, pp. 23–31; O'Neill, Sohal and Teng 2016), including Australia (Agarwal et al. 2014, p. 6497)".*

A proactive measure here would be for an organisation like the Productivity Commission to prepare advanced management practices and productivity case studies relevant to Australia, hopefully with Industry Association input. This information would be put on the web. It would work even better if a way was found to distribute the information to each business.

Pg 7. *The OECD estimates that the productivity gains from upskilling managers could be three times higher than for upskilling workers, with significant gains in less knowledge-intensive services like wholesale and retail trade and transport (Criscuolo et al. 2021, pp. 28–29).*

This highlights the importance of enhancement of all managers skills in relation to innovation and productivity and introduction of certified training programs across Australia.

Pg 8. *Figure 1.3 – Many Australian businesses undertake little or no assessment of their performance*

A good option would be to establish a Productivity Commission scoring system for businesses to use and adapt to their business.

Pg 9. *In 2020, only 2.4 per cent of Australian businesses said that shortages or deficiencies in business management skills adversely affected their core business activities. This suggests that approaches to improve management practices may need to go beyond providing skills but will also need to credibly reveal the deficiencies to managers who do not recognise they have any.*

A good option would be to establish a Productivity Commission training program for businesses to use and adapt to their business. This could include identifying productivity deficiencies in organisations, identifying productivity opportunities, training of staff, experimentation and changing cultures.

Pg 67. *This means that there are large potential gains from experimentation and the sharing of successes and failures. However, communication across small providers is difficult as there is often a lack of visibility or forum for such discussions, no coordinating mechanism, and a lack of incentives to share past experiences.*

Refer ideas raised above.

Pg 70. *Information request 3.1 National agreements between the Australian and state and territory governments are partly shaped by the power imbalance arising from the greater capacity of the Australian Government to raise revenue. A preferred model might be to have more cooperative models where governments agree to coordinate the activities that are best managed by each level of government. How could new models for cooperation between governments work and what role would national agreements, the National Cabinet, and the National Federation Reform Council play in such models?*

Refer my submission.

Pg 72. *Finding 3.5 New funding models can encourage diffusion and best practice. Funding models for hospitals that reward them for preventing hospitalisations would lower costs in the costliest part of the healthcare system, but also encourage the development and diffusion of a wide range of primary health interventions aimed at preventing and managing chronic disease. Funding contracts for community organisations delivering government funded services are often too short and limit the capacity and incentives for such organisations to learn, innovate and copy best practice. In some human services, such as disability care, giving the citizen control over a funding package stimulates more innovative solutions than alternative arrangements driven by government-funded or operated organisations.*

Totally support new funding models. Good areas would be simplification of project and environmental approvals and environmental regulation, reducing federal funding where states are recalcitrant. Another area would be federal bushfire funding, reducing federal funding where states don't complete minimum targets of prescribed burning. Another would be financial review of current university funding.

Pg 73. *Information request 3.2 Nearly everyone agrees that significant government procurement decisions should be guided by rigorous cost-benefit analysis, yet projects with low net benefits still abound. What realistic mechanisms could better diffuse best-practice project evaluation?*

Totally support this area of review.

It is understood that the Joint Committee of Public Accounts and Audit will examine the procurement culture in Canberra after a string of audits exposed a failure by federal government departments and agencies to obey mandatory requirements. Hopefully this will improve transparency, efficiency and value for money in Commonwealth procurement, focusing on five recent audits.

Why is university funding treated any differently than project funding, it is procurement of research? All proposed projects should complete B: C analysis in some form (brief/ non complicated), as well as the National Interest Test (needed for all research). There should be an additional separate test in Australia for an Industry (or Sector) Need and Support Test (INST) for all proposed research, a simple one page test. This would assist in ensuring research is awarded to those projects that will most likely provide for Australia's future.

Pg 78. *Information request 3.4 While there are a range of existing institutions with expertise and an associated capacity to diffuse best practice, these cover only some services. Loose innovation networks do not appear to have been effective. What institutional models could be used to better diffuse evidence-based best practice across all critical public sector services?*

It is unclear on what basis that loose innovation networks do not appear to have been effective. What were the membership of the networks and what were the aims? It would be good to issue a publicly available report on why these innovation networks weren't effective, if not, information used in house. It would be useful to survey each member of these innovation networks to tease out problems.

Unclear why this is focussed on just critical public sector services and should include all public and private sector industries.

Are hubs, hub structures and growth centres a better way?

Pg 80. *Recommendation direction 3.3 Ideas that have large public good value should not be behind paywalls The Australian Government should: • look at new funding models for Standards Australia to reduce or eliminate the pricing of standards that have high public good value • require open-source publication of research principally funded by governments in line with recommendations in the Productivity Commission's inquiry into intellectual property • reform fair-use provisions in intellectual property regulations to adopt a principles-based fair use exception.*

Agreed.

4 Key submission recommendations to the Productivity Commission

Submission recommendations and opportunities are outlined in bold throughout this report in Sections 2 and 3.

Annexure 1. Detailed assessment of plantation forestry productivity opportunities across Australia
Critical constraints to the industry, opportunity areas and key required government support areas in relation to productivity are outlined below:

Critical constraints to the industry.

1. The importance of plantation forestry isn't adequately recognised as an industry that can take Australia forward.
2. Inadequate plantation/ other timber supply as has happened over the last two years, with big impacts on building and construction.
3. Increasing imports of timber.
4. Plantation forestry isn't adequately protected from bushfires, putting long term assets at risk. There is inadequate bushfire protection across landscapes to protect plantations, communities and other assets.
5. Not meeting the National Forest Industries Plan, which was launched in 2018 to support the forest industries to: meet the challenges of the future underpin growth in the renewable timber and wood-fibre industries innovate and use our forest resources smarter assist industry to realise its ambition to plant a billion new plantation trees during the decade to 2030. The plan reinforced the Australian Government's commitment to securing a strong, sustainable forestry industry.
6. There are legislation, policies and processes that may unintentionally restrict plantation expansion.

Opportunity areas for the industry.

1. Address the importance of plantation forestry is adequately recognised, and it is recommended that it be an additional Growth Industry sector due to its important in meeting net zero and timber supply constraints.
2. Expand the plantation estate, further increasing greenhouse gas capture. Utilise the economic and environmental advantages of lower embodied and operational emissions in timber buildings.
3. Developing more timber markets and products here in Australia, including sawn products, cross laminated timber, glue laminated timber, fibreboard, fibre, pulp/ paper, packaging, veneers, biofuel/ densified pellets/ biomass pellets, bioenergy, other engineered wood products, nanocellulose, wood composites, wood plastic composites and lignin products. Bioenergy involves using carbon-rich waste to produce heat and electricity. The energy produced can be cheap, abundant and reliable and as with other renewable energies, power and heat from bioenergy is generated closer to where the energy and heat is used. With bio-engineering it can produce chemicals, fuels, synthetic rubber, cosmetics, detergents and textiles.
4. Setting up industries that can rely on variable intake of product, both in conjunction with existing industry and separate, such as if there is excess plantation timber, where timber parcel sales occur, where there are value adding opportunities, where market opportunities allow or where export markets reduce.
5. Exploring opportunities to further optimise salvage of burnt timber plantations for products, increasing salvage returns, reducing reestablishment costs and reducing time to replant. This includes interstate/ regional agreements for large plantation bushfire impacts and optimising products from bush fire salvage, salvaging standing timber well after the first year after bushfires. This also includes using salvage opportunities with biomass pellets in Australia and for export, including for longer periods after bushfires. This includes transporting and using more bushfire impacted plantation timber across borders/ from other timber areas, increasing salvage of burnt plantation timber following major bushfire events.
6. Improving timber salvage technology to store salvaged plantation timber over greater than 1 year, up to 5 years, as I understand this was achieved in the South Australian Mt Gambier 1984 bushfires with P radiata. This was achieved using water spaying and storage in water, water spraying is likely a better option.
7. Continuing to resolve supply constraints in the timber industry, including plantations. The current supply constraint inquiry is applicable. Increasing plantations in Australia is an important opportunity and will greatly assist in supplying timber to Australian markets and for export.
8. Continuing to promote the advantages of embodied emissions of the materials used to construct buildings, timber appears to be an attractive option, since according to many studies it can achieve less embodied and operational emissions in comparison to concrete and steel. In addition, the prefabrication of timber components with precision can deliver a highly efficient building envelope that improves insulation, saves on heating and cooling and minimizes thermal bridging.
9. Continuing expansion in using timber in the construction of tall buildings, bridges and other major projects.
10. Ensure that plantation forestry is adequately protected from bushfires and is classed as critical infrastructure.
11. Undertake workshops and working groups including plantation growers, industry, industry groups, federal and state governments to explore all plantation opportunity areas. Then teasing out the key actions for actioning. It would be beneficial if this process takes into account trade issues, incentives, cross border opportunities and the current supply constraints review. The process could be similar to the successful Bob Hawke's government wage reform approach, getting key parties together.
12. Explore incentives and tax opportunities to optimise new timber industry investment.
13. Continue support for the timber industry through regional forestry hubs. Work with industry and state governments to allow regional forestry hubs to maximise their capacity to accommodate plantation expansion in the right places
14. Work with industry to help farmers explore opportunities for: expanding farm forestry creating future wood and fibre supplies, improving linkages with the forestry industries, increasing economic returns for farmers. Work with state/territory governments, private native forest owners and interested Indigenous communities to unlock potential timber supply, and to deliver economic returns to landowners
15. Undertake further review of the water requirements in the Emissions Reduction Fund (ERF) farm forestry and plantation methodologies to enable forestry to fully participate in the ERF
16. Review other legislation, policies and processes that may be unintentionally restricting plantation expansion.
17. Develop additional research centres of the National Institute for Forest Products Innovation (NIFPI), in partnership with industry. Work with Forest and Wood Products Australia to support ongoing research, development and extension activities associated with the forestry industries

18. Work with Austrade to increase and diversify timber markets and products from tree plantations across Australia, including export and value added export. Work with the Business Council of Australia to increase and diversify timber markets and products from tree plantations across Australia, noting the importance of the plantation timber industry in capturing greenhouse gases, regional development and regional development. Work with the Department of Industry, Innovation and Science Industry Growth Centres Initiative to increase and diversify timber markets and products from tree plantations across Australia, increasing innovation, productivity and opportunities for the plantation timber industry.
19. Consider potential opportunities to appoint forestry market and product development specialists within Australia and for export.
20. Increase science opportunities in reuse of timber plantation material after major bushfires, including increasing the life of stored/ salvaged timber, innovative timber treatment options to increase life/ reduce blue stain and increasing the rage of potential timber products.
21. Increase targeted forest research with input from industry and land managers, in partnership with industry.

Key required government support.

1. The importance of plantation forestry is adequately recognised as an additional Growth Industry sector due to its importance in relation to productivity, competitiveness, regional development, employment, increased export/ reduced import, value adding and in meeting net zero and timber supply constraints.
2. Recognise the value adding opportunities of plantation timber products in Australia before export, hopefully over the broad range of timber products.
3. Dramatically expand the plantation estate, further increasing greenhouse gas capture, meeting Australian government requirements for an expanded timber industry.
4. Address plantation supply constraints, currently under review.
5. Plantation forestry is adequately protected from bushfires as critical infrastructure.
6. Exploring incentives and tax opportunities to optimise new timber industry investment.
7. Completing the National Forest Industries Plan to secure a strong, sustainable forestry industry.
8. Continued support for the timber industry of regional forestry hubs. Working with industry and state governments to allow regional forestry hubs to maximise their capacity to accommodate plantation expansion in the right places
9. Working with industry to help farmers explore opportunities for: expanding farm forestry creating future wood and fibre supplies, improving linkages with the forestry industries, increasing economic returns for farmers. Working with state/territory governments, private native forest owners and interested Indigenous communities to unlock potential timber supply, and to deliver economic returns to landowners
10. Undertaking further review of the water requirements in the Emissions Reduction Fund (ERF) farm forestry and plantation methodologies to enable forestry to fully participate in the ERF
11. Reviewing other legislation, policies and processes that may be unintentionally restricting plantation expansion.
12. Undertaking workshops and working groups including plantation growers, industry, industry groups, federal and state governments to explore all plantation opportunity areas. Then teasing out the key actions for actioning. It would be beneficial if this process takes into account trade issues, incentives, cross border opportunities and the current supply constraints review. The process could be similar to the successful Bob Hawke's government wage reform approach, getting key parties together.
13. Working with Austrade to increase and diversify timber markets and products from tree plantations across Australia, including export and value added export. Working with the Business Council of Australia to increase and diversify timber markets and products from tree plantations across Australia, noting the importance of the plantation timber industry in capturing greenhouse gases, regional development and regional development. Working with the Department of Industry, Innovation and Science Industry Growth Centres Initiative to increase and diversify timber markets and products from tree plantations across Australia, increasing innovation, productivity and opportunities for the plantation timber industry.
14. Considering potential opportunities to appoint forestry market and product development specialists within Australia and for export.
15. Developing additional research centres of the National Institute for Forest Products Innovation (NIFPI), in partnership with industry. Work with Forest and Wood Products Australia to support ongoing research, development and extension activities associated with the forestry industries
16. Increasing science opportunities in reuse of timber plantation material after major bushfires, including increasing the life of stored/ salvaged timber, innovative timber treatment options to increase life/ reduce blue stain and increasing the rage of potential timber products.

Examples of value adding and increasing utilisation of the available plantation timber resources in Australia include:

- The planned $59 M Tarpeena cross laminated timber (CLT)/ glue laminated timber (GLT) plant at the Tarpeena sawmill site in South Australia.
- Hyne's sawmill at Tumbarumba has sourced 441,000 m3 of pine plantation timber from South Australia and Victoria over the next three years, following the major bushfires at Tumbarumba and Batlow in early 2020. The SA timber currently has no Australian market and is exported. Hyne's are working through some assistance with freight with the State and Federal government.
- Proposed biomass pellet mill plant on Kangaroo Island capable of processing fire-damaged timber (Daily Timber News, 4 January 2020). Over the past 12 months, KIPT has worked to secure diversified markets for dry product, that is, logs produced from forests damaged by bushfire, beyond the tolerance of traditional export markets. Biomass pellets are a sustainably produced, carbon neutral form of fuel used for electricity generation in established markets in Japan, North America and Europe. There is growing interest and trade in biomass pellets as an emissions reduction strategy. New purpose-built plants are capable of generating power from 100 per cent biomass pellets. The plant would be at the company's timber processing hub at Timber Creek, a site which was damaged by the fires of last Summer. The pellets would be exported using the chip-handling facility at the proposed Kangaroo Island Seaport at Smith Bay.

Developing such business plantation timber market, diversification, value adding and resource use opportunity areas would improve Australian economic, employment and other outcomes, including:

- Greater economic activity and value adding across Australia, particularly in regional areas.
- Greater employment in Australia.
- A vibrant building industry using Australian timber products.
- More certainty re the export timber market and value added exports from Australia.
- Potentially greater use of bushfire impacted timber plantations increasing timber salvage, speeding up the reestablishment process and reducing plantation reestablishment costs.
- Economic and environmental advantages of lower embodied and operational emissions in timber buildings.
- Where Australian industry uses renewable energy, there are further advantages in reducing greenhouse emissions than compared to other countries.

It is suggested that the focus when exploring timber plantation opportunities would cover the following areas:

- Optimising timber product opportunities, including timber products, biofuel and bioenergy.
- Maximising value adding.
- Optimising regional development and employment.
- Optimising tree and timber recovery.
- Optimising plantation salvage, including major event bushfire salvage and storage.
- Reducing plantation bushfire risks where possible.
- Optimising science opportunities in the above.

In order to achieve these outcomes at government/ industry/ regional levels, it would be good to tease out mechanisms to increase opportunities to increase and diversify timber markets and products from tree plantations across Australia, including:

- Undertaking workshops and working groups including plantation growers, industry, industry groups, federal and state governments to explore all plantation opportunity areas. Then teasing out the key actions for actioning. It would be beneficial if this process was led by the Commonwealth with the states, taking into account trade issues, incentives, cross border opportunities and the current supply constraints review. The process could be similar to the successful Bob Hawke's government wage reform approach, getting key parties together.
- Exploring incentives and tax opportunities to optimise new timber industry investment.
- Establishing flexible workforces between timber products e.g. specialist products such as CLT/ GLT with an established sawmill.
- Expanding the plantation estate, further increasing greenhouse gas capture.
- Taking into account plantation supply constraints, currently under review.
- Working with plantation hubs to progress identified issues.
- Working with Austrade to increase and diversify timber markets and products from tree plantations across Australia, including export and value added export.
- Working with the Business Council of Australia to increase and diversify timber markets and products from tree plantations across Australia, noting the importance of the plantation timber industry in capturing greenhouse gases, regional employment and regional development.
- Working with the Department of Industry, Innovation and Science Industry Growth Centres Initiative to increase and diversify timber markets and products from tree plantations across Australia, increasing innovation, productivity and opportunities for the plantation timber industry.
- Considering potential opportunities to appoint forestry market and product development specialists within Australia and for export.
- Increasing science opportunities in reuse of timber plantation material after major bushfires, including increasing the life of stored/ salvaged timber, innovative timber treatment options to increase life/ reduce blue stain and increasing the rage of potential timber products.

It is suggested that it would be beneficial to explore the above opportunities to expand and diversify timber markets and products from pine and hardwood tree plantations across Australia, as well as value adding and maximising resource use. It is suggested that identified opportunities can then be separated into quick/ easy opportunities, medium term opportunities and longer term opportunities.

The plantation timber industry has the potential to become a role model for Australia.