A TAFE *New Industries Training Centre* for the Hunter

Briefing Note: January 2022

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Summary

2021 was a turning point for the realisation of renewable energy and clean manufacturing as economic anchors for the future prosperity of New South Wales. The runaway growth of renewables; decarbonisation investments in industries such as aluminium, steel and ammonia; the foundations of new sectors such as green hydrogen and battery manufacturing; and an enabling state policy environment have flipped the switch from aspiration to reality. While it is early days, there is a generational opportunity to lock in NSW's place as a global leader in clean energy and manufacturing.

A key hurdle is competition from those similarly well-placed to grab first-mover market share. NSW is well situated, but so are Queensland, Victoria, WA, Chile, Norway, Qatar, and the US, amongst many others. A rigorous assessment of competitive advantages – and how to leverage them with public policy and investment – is essential.

One standout advantage is NSW's vocational education and training system. Providing workers with opportunities to acquire high quality skills required by industry, and creating deep wells of 'human capital' to attract investors, are historical strengths. Other states, however, are currently proving more flexible in directing specific training investments to attract workers and investments in clean industries, outside of the constraints of the 'contestable' market model that has funded vocational training over recent years.

Government has a clear role in building skills, working with industry, and providing pathways for workers. For example, NSW has undertaken significant innovation in direct funding for training facilities for some industries with high skills demand. A notable example is civil construction, specifically the West Connex Training Academy model and its TAFE partnership, that has been adopted by other states.

However, as recent state government investments in Victorian and Queensland demonstrate, there is rapidly-evolving competition to retain training and education advantages in clean energy and related manufacturing sectors. Examples include the Federation TAFE Asia Pacific Renewable Energy Training Centre in Ballarat, and a $50 million Queensland Government investment for renewable and hydrogen facilities at TAFE, apprenticeship centres and schools in Brisbane, Beenleigh, Townsville and Gladstone.

To that end, the Hunter Jobs Alliance believes there is a strong case for public investment in a **TAFE New Industries Training Centre**, based in the Hunter. This would create clear pathways for workers, address skills shortages, and attract investment in sectors where labour and skills significantly influence developers' location decisions.

Such a Centre should be premised on industry participation and data-driven workforce planning. It should be established and operated as part of the TAFE system to make use of existing and emerging expertise; provide consistent workforce development and training for a long-term growth industry; and to utilise existing facilities.

There is a compelling case for establishing such a Centre in the Hunter Region. Current training system strengths; emerging industries such as hydrogen, offshore wind and battery manufacture; proximity to renewable energy centres in the Central West and North West; large decarbonisation projects; and a culture of innovation and collaboration make the Hunter an ideal location to establish nation-leading training capacity for the next generation of growth industries.

1. Meeting Critical Demand for Renewable Energy Skills

The Hunter is at the centre of a rapidly expanding set of clean industry investments, including renewable energy developments, industrial decarbonisation projects, diversifying mine and power station sites, and new sectors such as battery manufacturing, green hydrogen and offshore wind.

Renewable energy projects, supported by storage technologies and new transmission infrastructure, continue to expand rapidly to meet the gap left as coal generators retire in coming years. Ongoing and rapid expansions are identified as essential by energy regulators and the NSW Government over the next 10-15 years. The Hunter region is linked directly to this growth through geography, transport, transmission, business and educational relationships to the state's first renewable energy growth centres in the Central West-Orana and New England Renewable Energy Zones.

The Hunter is also in the process of being developed as a Renewable Energy Zone, with an emphasis on powering heavy industry, brownfield site redevelopment, and transmission infrastructure, as well as new generation and storage infrastructure. Developments such as the repurposing of the Muswellbrook Coal and AGL Liddell sites to a mix of generation, battery and pumped hydro storage, manufacturing and hydrogen facilities; and the identification of the Hunter as a priority investment area for exploiting offshore wind resources;[i] as well as wind and solar projects, are generating a critical mass of emerging investment opportunities.

However, there are live concerns that a lack of skilled workers is bottlenecking renewable energy builds, [ii] and the future prospects of industries such as offshore wind and green hydrogen. For example, recent expert and industry commentary noted that there is "significant potential for shortages [of] engineers, electricians, then there are some specialised occupations like line workers which could impact more critical [projects]."[iii] Both onshore and offshore wind developers have recently noted the lack of training pathways to encourage people into the industry, with this being particularly acute in regional areas.[iv] [v] There is also concern given the scale of offshore wind requires large and long-term labour forces. [vi]

2. Creating a Talent Pool to Attract and Grow New Industries

Skills deficits thus pose a serious risk to the critical task of replacing ageing generation infrastructure. They also pose risks to delivering the ambitious renewable growth needed decarbonise existing manufacturing industries, provide sufficient power to grow a large-scale hydrogen industry, or accommodate the future electrification of transport.

Beyond renewable energy, there are manufacturing, clean fuels and innovation growth sectors that hold substantial promise as employment generators and will have a range of specific skill needs. New entrants in energy storage technology, such as the Energy Renaissance battery facility in Tomago with plans to employ 1700 workers, and local storage technology company MGA Thermal, are seeking to scale up operations to meet demand over coming years, and are likely to have a variety of vocational training needs specific to their technology.

As has been demonstrated successfully in the UK, the increase in scale of renewable energy can also generate significant onshoring of supply chain manufacturing. In this highly competitive sector, good policy settings can support this important manufacturing activity, but the availability of skilled workers is also of critical significance to companies in deciding where to locate, maintain and develop supply chains.

Similarly, the recent Hunter Hydrogen Roadmap[vii] incorporates an excellent analysis of the education and training infrastructure needed to ensure the Hunter successfully develops the hydrogen industry - in the face of considerable competition. This analysis raises the prospect of a training centre, and makes a number of recommendations that respond explicitly and implicitly to the challenges in developing skills for new, emerging industries.

While some sectors (notably renewable energy developments) have at least somewhat forecastable high growth trajectories, there are shared uncertainties in growth timelines and specific skill needs for clean energy and related manufacturing sectors. This is due to technology change, price, investment and policy factors.

Effectively designing a training system that satisfies investor needs for available skills, and provides workers with credible employment pathways, demands significant expertise and investment. It also requires a strong and durable institutional basis that builds confidence amongst developers that their training needs will be met.

Key actions include resourcing of permanent education and training capacity; strong industry partnerships; data and industry-driven workforce planning; responsive and timely development of training packages; and a collaborative education and training sector that can meet multiple skill and occupational needs.

The recommendations of the Hunter Hydrogen Strategy effectively cover these key areas, suggesting a comprehensive strategy complementing ‘bricks and mortar’ training facilities:

- Analysis of skills requirement, map regional readiness and workforce training demand
- Benchmark analysis of core competencies for participation in hydrogen supply chains
- Career pathways and workforce scenarios
- Establish a Hydrogen Skills Taskforce
- Scope testing and training centre

3. Models

Both Queensland and Victoria are commissioning training facilities to address industry shortages, to create talent pools to attract investment, and to provide training pathways for those seeking to work in renewable energy.

In Victoria, Federation TAFE collaborated with energy companies to develop a business case for the Asia-Pacific Renewable Energy Centre (APRETEC) in Ballarat in 2019[viii], resulting in Victorian Government investment. Partners include renewable energy operators, developers and manufacturers GPG, Vestas, Acciona and Tilt.

Federation, as a dual university/vocational educator, is seeking to leverage the facility to combine its expertise in research and tertiary education with the provision of vocational trade and accreditation qualifications. Professor Duncan Bentley, Vice Chancellor of Victorian University, noted at the facility's launch in April 2021 that:

> *The demand for jobs and growth in the renewable energy sector is fundamental to Western Victorian growth and Eastern Victorian growth (video here). So APRETEC is right at the cutting edge of delivery of skills and training to the workforce of Victoria's future.* [ix]

Industry participants TILT Renewables has noted the importance of providing clear pathways for workers:

> *It's a really exciting opportunity to join forces with industry and a professional training provider, and provide something tangible and credible, and a real pathway into the sector.*[x]

The ambition of the centre to provide globally-relevant training has also been confirmed by the Australian CEO of Vestas, the world's largest wind turbine manufacturer:

> *We can get someone qualified there who we could use elsewhere in the world – that's really valuable.* [xi]

In Queensland, $23 million has been invested in the Pinkenba Renewable Energy Training Centre in Brisbane, supporting 300 students and 40 teaching positions in electrotechnology and renewables. The Centre, currently under construction, includes onsite wind turbine, telecommunications and solar training facilities, as well as in-field training, and will be open in June 2022.[xii]

The facility is explicitly targeted at attracting investment in both renewable energy, and hydrogen for domestic and export use, as described by the Queensland Premier:

> *We need facilities like this now, so trainees and apprentices can develop the skills they need to ensure Queensland is ready to go as interest in and the need for renewable energy and hydrogen worldwide soars…with our abundance of solar and wind, Queensland is the ideal candidate to produce hydrogen for domestic and international use.*

In recent months the Queensland Government has also announced a $32.6 million package to 'advance hydrogen skills, attract new workers to the sector, and meet projected demand', including $20m for a Hydrogen Training Centre of Excellence at Beenleigh for Apprentices, $10.6 million for a hydrogen and renewable training facility at Bohle TAFE in Townsville, and $2m to prepare students at Gladstone High for hydrogen jobs.[xiii]

4. The Hunter's Advantage

The Hunter region has a specific set of advantages that make it the ideal location for a New Industries Training Centre serving NSW.

Firstly, the Hunter is located in proximity to major renewable growth areas in the Central West and North West; decarbonising heavy industry; emerging clean manufacturing; and future offshore wind areas.

Secondly, there is strong existing capacity and experience in the education and training system to provide technical trades training, and TAFE in the Hunter has begun to develop specific renewable energy training.

For example, Newcastle TAFE was recently announced as one of two sites for the Diploma of Renewable Energy Engineering, with then Skills Minister Geoff Lee noting that:

> *As renewables gains that head of steam that we think it will - I think it's going to create something like 59,000 jobs over the next decade or two - we'll need to offer more courses, so this is just the start… Clearly there will be a future workforce required and that's what TAFE is especially good at, looking at what we need to do to skill up people so we don't have those critical skills shortages in the future.* [xiv]

Related is the availability of dedicated TAFE locations that can be leveraged with targeted investment in facilities. While a specific location or locations would be the subject of a detailed business case, TAFE facilities with existing energy and trades training, such as Tighes Hill (Newcastle) and Muswellbrook, would be strong candidates.

Thirdly, there is very strong business community and regional stakeholder support for the development of renewable energy, green hydrogen, clean manufacturing and decarbonised heavy industry. Regionally-led initiatives such as the Hunter Hydrogen Roadmap are occurring alongside major investments from key industry players, local innovation and the attraction of new industry investment.

Fourth, there is a strong enabling policy environment centred on the Hunter, including Renewable Energy Zones, Clean Manufacturing Precincts, the Net Zero Industry and Innovation Program, and the NSW Hydrogen Strategy.

Finally, the Hunter has the right mix of substantial population base, lower living costs than capital city areas, lifestyle, and employment opportunities to provide an attractive proposition to students and workers undertaking short- or long-term training opportunities, as well as providing talent pools of workers and educators.

5. Conclusion

As the substantial public investments in Victoria and Queensland demonstrate, there is both immediate demand and competition for provision of training to the renewable energy sector to meet industry needs. Moreover, the accelerating emergence of clean manufacturing, new renewables and storage, industrial decarbonisation, and hydrogen opportunities in the Hunter provides a clear opportunity to establish nation-leading training capacity.

The regions' existing and emerging strengths, and a strongly supportive stakeholder and policy environment, provide significant impetus for public investment in a **TAFE New Industries Training Centre** serving NSW. This investment would further promote and burnish the credentials of NSW and the Hunter as globally-significant energy and manufacturing destinations, and facilitate a clear point of entry to these growth industries for young people and workers looking for new opportunities.

The Hunter Jobs Alliance offers this suggestion as a constructive contribution to the Hunter community's efforts to grow and diversify economic and job options. To that end, we outline a set of recommendations to scope and establish a New Industries Training Centre, and we welcome any feedback on these recommendations and the analysis contained within this briefing note.

6.Recommendations

Policy Recommendations

1. A permanent and dedicated TAFE New Industries Training Centre (NITC) is established in the Hunter, to meet vocational training needs for renewable energy, clean technology, hydrogen and decarbonised manufacturing across NSW.

2. The establishment, staffing, operational and some course costs for the Centre are funded directly, outside of the contestable vocational training funding model, at a level sufficient to establish a world class facility, at a minimum competitive with interstate centres.

3. A permanent program is established as part of the Centre to undertake workforce planning, driven by data and industry participation, to anticipate labour, unit, courses, and training capacity demand.

4. Industry partnerships and participation are established as part of the core operating model of the Centre.

5. Collaboration with industry, the University of Newcastle, Group Training Organisations, and other providers, and stakeholders to identify complementary training provision to maximise the value of the Centre.

Scoping Recommendations

6. NSW Government, with local stakeholders – or alternatively local education, industry, and regional stakeholders – develop a business case for the establishment of a TAFE New Industry Training Centre in the Hunter.

7. Industry engagement and data-driven workforce planning are undertaken to identify required technology, facility, courses, and delivery modes.

[i] Briggs, C., M. Hemer, P. Howard, R. Langdon, P. Marsh, S. Teske and D. Carrascosa (2021). Offshore Wind Energy in Australia: Blue Economy Cooperative Research Centre, Launceston, TAS. 92p

[ii] Clean Energy Council (2020) *Clean Energy at Work,* June 2020, Clean Energy Council and Institute for Sustainable Futures, https://assets.cleanenergycouncil.org.au/documents/resources/reports/Clean-Energy-at-Work/Clean-Energy-at-Work-The-Clean-Energy-Council.pdf

[iii] https://reneweconomy.com.au/could-a-skills-shortage-stall-the-renewable-energy-revolution/

[iv] https://reneweconomy.com.au/could-a-skills-shortage-stall-the-renewable-energy-revolution/

[v] Griffin, D (2021) Testimony to Environment and Communications Legislation Committee - 01/10/2021 - Offshore Electricity Infrastructure (Regulatory Levies) Bill 2021 and Offshore Electricity Infrastructure Bill 2021, https://www.aph.gov.au/Parliamentary_Business/Hansard/Hansard_Display?bid=committees/commsen/25190/&sid=0000

[vi] Briggs, C., M. Hemer, P. Howard, R. Langdon, P. Marsh, S. Teske and D. Carrascosa (2021). Offshore Wind Energy in Australia: Blue
Economy Cooperative Research Centre, Launceston, TAS. 92p

[vii]Hunter Hydrogen Taskforce (2021) Hunter Hydrogen Roadmap, https://hunter.org.au/wp-content/uploads/2021/11/20211117-Hunter-Hydrogen-Roadmap.pdf

[viii] https://www.thecourier.com.au/story/6181095/first-steps-for-renewable-energy-training-centre/

[ix] https://fedflix.federation.edu.au/media/APRETC+Launch+%E2%80%93+Training+the+renewable+energy+workforce+of+the+future/1_brvu0n71

[x] https://fedflix.federation.edu.au/media/APRETC+Launch+%E2%80%93+Training+the+renewable+energy+workforce+of+the+future/1_brvu0n71

[xi] https://reneweconomy.com.au/could-a-skills-shortage-stall-the-renewable-energy-revolution/

[xii] https://www.australianmanufacturing.com.au/new-23m-facility-to-boost-queenslands-renewable-energy-sector-workforce/

[xiii] https://www.epw.qld.gov.au/about/initiatives/hydrogen/training

[xiv] https://www.newcastleherald.com.au/story/7539117/tafe-nsws-new-diploma-of-renewable-energy-engineering-to-debut-in-newcastle/