national electrical and communications association

# AUSTRALIA'S PRODUCTIVITY

## PILLAR 5: Investing in cheaper, cleaner energy and the net zero transformation

**JUNE 2025**

# INTRODUCTION

Four years and one month after the end of the Second World War, Prime Minister Ben Chifley turned the first sod of the Snowy Hydro Scheme in Adaminaby. This moment marked the beginning of a new era of growth, prosperity and nation building for Australia. Now, more than three years since the COVID-19 pandemic, we again stand at a turning point. With the energy transition underway and the need for structural economic reform, the Electrotechnology sector is well placed to help lead Australia into its next chapter.

NECA welcomes the opportunity to contribute to the Productivity Commission's inquiry and supports reforms that will enhance Australia's productivity and economic resilience. The challenges before us are complex. Inequality is increasing, digital disruption is accelerating, global trade and supply chains are shifting, and the urgency to decarbonise is growing. Economic growth has slowed, GDP per capita has declined over the past seven quarters, and productivity remains under pressure. Yet despite these challenges, unemployment remains low, inflation is easing, and Australia has a real opportunity to take decisive action.

Our path forward depends on investment in infrastructure, innovation and people. A dynamic and resilient economy must be built on the industries that will shape the future. The Electrotechnology sector is one of those industries.

With 56,402 businesses and over 241,000 employees, the Electrotechnology sector includes electrical contractors, electricity network operators, communications experts and digital transformation specialists. It plays a critical role in Australia's transition to a clean energy and technology driven economy. This sector will modernise national infrastructure, strengthen energy security and support the expansion of renewable energy. It will also enable priority outcomes such as electrifying transport, expanding electric vehicle charging networks, building infrastructure that can withstand a changing climate, enabling carbon capture and storage, and improving national digital connectivity.

However, these outcomes depend on a workforce with the capacity to deliver. Jobs and Skills Australia forecasts a shortfall of up to 32,000 skilled electrical tradespeople by 2030. Without action, this shortage puts critical national projects at risk. NECA calls for policies that support skills development, reduce regulatory complexity and provide small businesses with the tools they need to thrive.

Unlocking the full potential of the Electrotechnology sector is essential for achieving a more productive, inclusive and forward looking economy. Pillar 1 reforms that streamline regulation, strengthen innovation, improve access to finance and build workforce capability will lay the foundation for long term growth and resilience.

This is our moment to write the next chapter in Australia's story, one powered by skilled trades, sustainable industries and transformative infrastructure.

# About NECA

The National Electrical and Communications Association (NECA) is the leading industry body for Australia's electrical and communications sectors. With branches in every State and Territory, NECA represents more than 6,500 businesses across diverse industries, including construction, mining, air conditioning, refrigeration, manufacturing, communications, and renewable energy.

These businesses specialise in the design, installation, and maintenance of electrical systems and electronic equipment, driving innovation and excellence across the country. For over 100 years, NECA has advocated for the electrotechnology industry, championing safety, efficiency, and regulatory compliance. The association represents the sector at all levels of government and within key industry forums.

NECA members play a vital role in Australia's economy, powering businesses, homes, and critical infrastructure. Their work enhances energy security, drives investment, and delivers sustainable, affordable solutions. NECA is committed to maintaining high industry standards, safeguarding the reputation and safety of the electrotechnology sector for tradespeople, consumers, and the broader community.

NECA Training empowers the electrical, electricity supply, and communications industries by delivering a broad range of high-quality programs. These include pre-apprenticeship, apprenticeships, post-trade accredited, and industry-specific courses, all recognised for their excellence and holistic approach. We train over 3,500 apprentices nationally, achieving an outstanding 90% plus completion rate – well above the average of public sector training of around 50%.

In response to Australia's projected shortage of 32,000 electricians by 2030, NECA Training promotes diverse career pathways, encouraging school students, school leavers, and Indigenous and mature-aged apprentices to enter the industry. We are also committed to increasing female participation, with nearly 20% of our apprentices currently women, and aim to further grow this percentage in the years ahead.

NECA is shaping Australia's future with a skilled workforce, sustainable businesses, and innovation to power communities and technology.

# Reduce the cost of meeting carbon targets

## Energy Capacity and Reliability: A Key Challenge

Australia's transition to renewable energy presents challenges in maintaining a stable and reliable power supply, especially for energy-intensive sectors like data centres. These facilities require substantial energy, and as their growth accelerates, so does the demand for uninterrupted power. To meet this demand, significant investments in large-scale energy storage, upgraded transmission networks, and reliable base-load power are essential. Without these improvements, Australia risks energy shortages that could disrupt operations.

The Electrotechnology sector plays a vital role in addressing this challenge by delivering smart grid systems, energy-efficient technologies, and advanced infrastructure to support the power needs of these facilities.

## Energy Generation and Technological Focus

NECA supports a technology-agnostic approach to energy generation. The transition to renewables like solar, wind, and energy storage requires substantial infrastructure, but addressing base-load energy needs is equally critical. As Australia moves toward net-zero, reliable energy will be essential to meet the rising demand from electrification, including electric vehicles, homes, and data centres (Department of Industry, Science, Energy and Resources, 2023).

NECA advocates for a balanced energy generation mix to ensure energy security, in line with global best practices outlined by the International Energy Agency (2022). Whether through renewables or emerging technologies, the Electrotechnology workforce will be essential in installing, maintaining, and connecting these systems to the grid.

Fast-tracking regulatory approvals and investing in workforce training are key to ensuring a skilled workforce capable of meeting future energy demands. Industry members need the tools to plan for future workloads and access skilled professionals to help drive Australia’s energy transition forward.

# Speed up approvals for new energy infrastructure

## Smart Cities and Urban Renewal

The development of smart cities relies on integrating IoT, smart grids, and energy-efficient systems into urban infrastructure. The Electrotechnology industry is crucial to installing and maintaining these systems. Governments must collaborate with industry to overcome planning delays, allow flexibility for technology advancements and ensure timely project delivery. NECA would further comment that the implementation of the electrification of the home will put further strain on the already critical skill shortages and urgent measures are needed to increase the available workforce.

## Hydrogen Infrastructure

The growth of Australia's hydrogen economy requires infrastructure for production, storage, and transport. The Electrotechnology industry will support this by building and maintaining electrical systems in hydrogen production plants and refueling stations. Fast-tracking these projects and investing in workforce development is necessary for a sustainable hydrogen economy.

## Skilled Labour Shortage

Jobs and Skills Australia (JSA) has identified the need for an additional 32,000 electricians to meet the demands of Australia's clean energy transition and infrastructure projects by 2030. This figure is echoed by the Clean Energy Council, which highlights the necessity for these additional electricians to achieve 82% renewable generation in the National Electricity Market and a 43% emissions reduction below 2005 levels by 2030.

This shortage risks driving up project costs, delaying essential works, and undermining productivity as demand for skilled electrical labour intensifies in the transition to renewable energy, electrified transport, and digital infrastructure. Immediate and decisive government investment in quality training, apprenticeship pathways, and targeted workforce development is essential to building a reliable pipeline of skilled professionals. In addition to increasing places in traditional TAFE programs, there must be greater support for Group Training Organisations (GTOs) and industry-led Registered Training Organisations (RTOs), which have demonstrated higher completion rates and closer alignment with employer needs. Encouraging collaborative partnerships between industry-led RTOs and the TAFE system will ensure that training is both scalable and responsive to the evolving requirements of the sector. Addressing this workforce gap now, with a flexible and industry-driven approach, will enable Australia to meet future demand, maintain project delivery schedules, and support economic growth during a period of rapid transformation.

## Slow Infrastructure and connection approvals and implementation

Delayed infrastructure approvals are a major barrier to progress. Expediting approval processes and the ability for ASP's (Accredited Service Providers) to compete for engineer and construct approved the required network assets, particularly for renewable energy and transport projects, will contribute substantially to ensuring that critical infrastructure is delivered on time.

To achieve genuine competition and uphold consumer choice, the Ring-Fencing Guidelines (Distribution and Transmission) must be further strengthened. Regulatory gaps that enable monopoly network operators to avoid competitive safeguards must be closed. It is essential that all jurisdictions are required to guarantee consumers the unequivocal right to select their own provider for the design and construction of connection assets, rather than allowing network operators or their affiliates to dominate this process by default.

Strengthening these guidelines and mandating true contestability will drive substantial productivity gains across the energy sector. When connection works are open to fair competition, new market entrants can deliver innovation, efficiency, and improved cost discipline.

For example,

- in NSW consumers have a right in legislation to this outcome supported by their Accredited Service Provider (ASP) scheme.
- In Queensland, an ASP scheme has been implemented by Energy Queensland to enable developers to enable developers engage suitably qualified contractors to deliver projects involving new DNSP assets required for their developments.
- Other jurisdictions, particularly Western Australia, ACT, and Tasmania have neglected to address this aspect of electrical infrastructure development, resulting in delays in project delivery and/or diversion of investments to jurisdictions that enable customer choice and empowerment rather than relying on DSNP dependent services and availability.

## Cybersecurity Risks

As digital infrastructure becomes more interconnected, the need for strong cybersecurity measures increases. Electrical contractors will be integral in integrating cybersecurity protocols into critical infrastructure. The government must support these efforts to safeguard emerging technologies.

# Harnessing data and digital technology

## Data Centres

It is simple, no Data Centres, no AI! The powering and construction of Data Centres are the essential lynch pin to Australia's tech-driven economy, supporting AI, cloud-based computing, and data storage. As Australia aims to be a regional leader in digital services, addressing challenges like reliable energy infrastructure, industrial relations stability, and workforce development is crucial.

Without sufficient base-load power, Australia risks losing major tech companies to regions with more reliable energy. Additionally, relying on offshore data storage exposes Australia to significant security and privacy risks. As the Australian Strategic Policy Institute (ASPI) notes, "The lack of data sovereignty puts Australia at risk of exposure to foreign legal and regulatory frameworks that do not align with Australian values or security standards" (ASPI, 2023). Similarly, the Australian Cyber Security Centre (ACSC) highlights that "Storing data offshore introduces vulnerabilities and increases risks of cyber threats, which may not comply with Australian security standards" (ACSC, 2022).

NECA members are specialists in building and planning data centres, providing critical electrical systems and infrastructure. They play a vital role in ensuring data centres are designed and constructed to meet growing demand for capacity, security, and efficiency.

To maintain Australia's digital sovereignty, the government must address these challenges by ensuring reliable energy infrastructure, stable industrial relations, and workforce development. Investing in domestic data centres will safeguard data, enhance privacy standards, and secure Australia's position as a global digital leader.

Data centre expansion is a significant opportunity for Australia's economy, with an anticipated $50 billion or greater potential contribution over the next decade. The demand for advanced electrical and communications infrastructure, driven by AI and data-intensive industries, will create thousands of jobs and boost GDP. Australia is on track to become a regional hub for digital services, and Electrotechnology industry members will play a key role in supporting this growth through the delivery of electrical systems that power these data centres.

Constructive industrial relations will be essential to the success in establishing this sector. Delays in critical infrastructure projects from industrial disputes would increase the costs of development and undermine investor confidence.

NECA supports free and open market considerations for the awarding of all tenders and contracts to ensure the best contractors for the works are selected. This is essential to ensure confidence in the construction and operations of the data centre and for multinational tech giants to also maintain and increase trust in the Australian tech sector.

For Electrotechnology industry members, such disruptions can delay projects and increase costs, potentially encouraging tech businesses to shift operations to more stable regions. To foster continued growth in this sector, a more predictable and stable industrial relations environment is essential.

## The Role of AI and the Shift in Data Centre Strategies

The rise of AI is reshaping the design and operation of data centres. Traditionally built for cloud-based computing, data centres now must accommodate AI workloads, which require more advanced electrical systems and cooling technologies. With AI-powered data centres potentially being located anywhere globally, Australia faces competition from regions offering lower construction and operational costs. NECA members will need to stay competitive by upskilling the workforce in AI-specific technologies and developing the necessary electrical systems to support this shift.

# Encourage adaptation by addressing barriers to private investment

## Electrotechnology Industry Challenges and Opportunities for Nation-Building

As Australia embarks on ambitious nation-building projects in the coming decades, the Electrotechnology industry will be pivotal in delivering critical infrastructure and systems across renewable energy, transport, digital connectivity, and urban development.

The Electrotechnology workforce will play an essential role in the success of these projects, but to ensure timely, cost-effective, and sustainable delivery, the Commonwealth Government must provide critical support.

The current inadequacies in the structure and enforcement of ring-fencing regulations are enabling Distribution Network Service Providers (DNSPs) to engage in practices that undermine productivity across the electricity services market. DNSPs, through their affiliated Related Electricity Service Providers (RESPs), are able to arbitrarily allocate regulated resources, such as staff, vehicles, and infrastructure, to compete in contestable service markets, including new connections, customer driven works, embedded networks, and even emerging fields such as EV charging infrastructure. This cross-subsidisation allows RESPs to operate as faux businesses with an unfair cost advantage, distorting competitive market signals and crowding out independent electrical contractors who cannot access equivalent resources without incurring their full commercial cost. In this environment, the DNSP's are perversely incentivised to maintain greater quantities of staff and equipment to enable the pursuit of profits in contestable markets and/or reduce their deployment to regulated services to favour of the activity of the RESP, contrary to the National Electricity Objective.

The direct consequence of this behaviour is a reduction in overall sector productivity. Independent contractors, who typically drive innovation, invest in advanced technologies, and develop specialist skills, are systematically disadvantaged. This diminishes incentives for capability development, reduces investment in workforce training and advanced systems, and ultimately lowers the quality and efficiency of service delivery across the industry. The resulting market concentration not only stifles innovation, but can also lead to project delays, inflated costs, and a reduced capacity to respond flexibly to changing industry needs, which is precisely the opposite of what is required in a sector underpinning Australia's net zero transition and digital transformation.

To restore productivity and competitive neutrality, ring-fencing arrangements must be strengthened and rigorously enforced. This includes prohibiting DNSPs from deploying regulated assets or personnel in contestable markets, ensuring full cost-reflectivity for any shared services and increasing transparency through independent audits and real-time disclosure of resource allocation. Further, clear guidelines should mandate that all contestable work, including new customer connections, data and communications infrastructure, and distributed energy projects, are subject to open competitive tendering, with DNSPs and their affiliates ring-fenced to the same degree as any private market participant. By implementing these technical reforms, the sector will be positioned to achieve higher productivity, lower costs, and deliver the innovation and responsiveness

required for Australia's rapidly evolving energy landscape.

If DNSPs have spare labour and equipment, a far better use of these taxpayer-guaranteed resources would be to address their own backlog of essential works and deliver the enabling infrastructure and information sharing urgently needed to support housing, economic growth, and the energy transition. Redirecting regulated resources to core network priorities, rather than leveraging them for competitive advantage, would deliver greater value to consumers and help ensure public funds are used as intended.

## Renewable Energy & Energy Security

NECA supports a technology-agnostic approach to future energy generation. Transitioning to renewable energy – solar, wind, and energy storage—requires significant electrical infrastructure. However, replacing ageing generators and addressing base load energy needs must also be prioritised. As Australia moves towards net-zero, reliable and affordable energy will be essential to meet rising demand from electrifying transport, including EVs, and powering data centres. Renewables alone may not suffice in meeting these needs (Department of Industry, Science, Energy and Resources, 2023).

Regardless of the energy mix, the Electrotechnology workforce will play a vital role in installing, maintaining, and connecting renewable energy systems to the grid. Fast-tracking regulatory approvals and investing in workforce training are critical to ensuring energy security.

The skilled workforce needed can only be achieved if Industry members can plan for future workloads and have access to skilled professionals.

## Transport Infrastructure

The electrification of rail lines and development of driverless trains are vital for future transport networks. Electrotechnology professionals are essential in installing systems for high-speed rail, automation, and communications for driverless trains. Additionally, the rollout of electric vehicle (EV) charging infrastructure requires substantial electrical systems, which Electrotechnology contractors will deploy across Australia.

Electrifying rail is key to reducing emissions and improving efficiency. Electrotechnology industry members will install power systems and substations. According to the National Transport Commission, "electrification is crucial for emission reductions and transport efficiency" (2020).

Driverless trains rely on advanced electrical systems for communications and safety. Infrastructure Australia notes, "automated trains need complex electrical systems for reliable operation" (2021).

The rise of electric vehicles demands widespread charging infrastructure. The Electrotechnology industry will be key to this expansion. The Clean Energy Council states, "an extensive EV network, supported by skilled contractors, is crucial for carbon reduction goals" (2021).

The Electrotechnology industry will play a pivotal role in delivering these transport projects. Fast-tracking regulatory approvals and investing in workforce training are essential to meeting demand and ensuring energy security.

## Digital Infrastructure and 5G Rollout

Building Australia's digital future depends on robust telecommunications infrastructure. Electrical contractors are responsible for installing electrical systems for 5G antennas, fibre optic networks, and data centres. These upgrades are vital for smart cities, remote working, and economic competitiveness, and the government must streamline approval processes to facilitate their delivery.

The benefits of correct enforcement of ring-fencing regulations in the energy sector—designed to separate monopoly network providers from contestable service markets—are equally relevant to Australia's transport infrastructure landscape. Applying a similar regulatory approach to major road and rail projects would ensure that government agencies focus on planning and asset management, while maximising opportunities for private sector contractors to deliver contestable services, such as electrical and data infrastructure.

Currently, NECA members have reported being excluded from tenders for associated electrical and data infrastructure on significant road projects, often because government business enterprises reserve these packages for their own related entities or preferred providers. This limits competition, undermines innovation, and restricts access to the specialist skills and efficiency gains offered by independent contractors. Such practices not only diminish productivity but can also lead to higher costs and less optimal project outcomes.

Enforcing ring-fencing principles in transport infrastructure would address these shortcomings by creating a level playing field for all qualified providers. This would enable open competition, encourage best-practice delivery, and harness the full capabilities of Australia's construction and electrotechnology sectors. In turn, government and the public would benefit from more efficient project delivery, improved accountability, and better value for taxpayer investment

national electrical and communications association

.

To arrange a meeting or discuss this proposal further, please contact:
Fiona Scott
Director of policy
NECA National

**E** fiona.scott@neca.asn.au **W** www.neca.asn.au