national electrical and communications association

AUSTRALIA'S PRODUCTIVITY

PILLAR 3: Harnessing Data & Digital Technology

JUNE 2025

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, enable carbon capture and storage, and improve 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, apprenticeship, 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.

Enhance reporting efficiency, transparency and accuracy through digital financial reporting

From an economics perspective, the adoption of digital financial reporting within the electrotechnology sector has the potential to deliver substantial gains in efficiency, transparency, and accuracy—key drivers of productivity. Digital systems streamline the capture, processing, and analysis of financial data, reducing manual errors and administrative overheads, thereby freeing up valuable resources for core productive activities. This allows businesses, from SMEs to large contractors, to make more timely and informed decisions, optimise cash flow management, and improve compliance with tax and regulatory obligations.

Turning to regulatory compliance, the introduction of digital reporting platforms represents a critical evolution in how industry meets its legal and technical obligations. Initiatives such as electronic submission of compliance certificates general electrical work system offer the potential a platform for real-time compliance tracking, intelligent audit processes and deployment of inspector/enforcement resources, and greater transparency for all stakeholders. However, as this system is in its early stages, careful evaluation will be required to ensure it delivers on its promise without introducing new administrative burdens or gaps in enforcement.

To maximise productivity and integrity gains, the sector should advocate for the development of a nationally consistent digital regulatory reporting framework. A harmonised, interoperable platform would eliminate duplication across jurisdictions, support data-driven regulatory oversight, and make it easier for contractors and businesses operating interstate to demonstrate compliance. Such an approach would streamline regulatory administration, enable benchmarking and best practice sharing, and ultimately underpin both sectoral productivity and consumer protection at a national scale.

Enable AI’s productivity potential

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.

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.

One of the most significant opportunities for improvement lies in the development of more accurate forecasting for both electricity demand and supporting infrastructure. In recent years, the pace and scale of digital transformation across Australia have been unprecedented. Major investments in cloud computing, artificial intelligence, and digital services have rapidly accelerated the requirements placed on data centres. However, existing electricity demand forecasts have often relied on historic usage patterns or generalised industry assumptions. These methods have not kept up with the rapid and sometimes unpredictable growth of data centre activity, particularly in major hubs such as Sydney and Melbourne.

When demand forecasts underestimate the real needs of the sector, there are practical consequences. Inaccurate or conservative forecasts can delay critical upgrades to grid infrastructure, restrict the allocation of capacity for new developments, and create uncertainty for investors. Data centre operators may face prolonged wait times for network connections or encounter costly constraints in regions where grid capacity has not been expanded in line with projected demand. The resulting bottlenecks not only impact business confidence but also risk undermining Australia's ability to attract and retain large-scale digital investment. For government, inaccurate forecasting can result in the inefficient allocation of resources and the risk that infrastructure is delivered too late to meet market requirements.

This is where regular and structured engagement between all stakeholders becomes critical. Industry participants possess the most current and detailed insights into future demand, technological trends, and business plans. By establishing mechanisms for ongoing consultation, transparent data sharing, and collaborative scenario planning, the sector and government can together build a "single source of truth" for demand projections. This not only improves the accuracy of forecasts but also enables infrastructure planners, network service providers, and government agencies to act proactively, reducing the risk of supply constraints and ensuring that critical upgrades are delivered in a timely manner.

Constructive industrial relations will be critical to the successful establishment and ongoing competitiveness of Australia's AI-driven data centre sector. Industrial disputes and project delays not only increase the direct costs of infrastructure delivery—through lost time, demobilisation, and remobilisation—but also erode productivity by disrupting carefully coordinated construction schedules and supply chains. This issue is seen by industry as a significant risk, with major data centre companies factoring the potential for industrial

unrest into their decisions on whether to invest in Australia or opt for offshore locations with more predictable project delivery.

Moreover, persistent industrial unrest can significantly damage investor confidence, making it more difficult to attract the capital required for large-scale data centre developments. For Australia to realise its potential as a global safe-haven for secure data storage and advanced digital infrastructure, a collaborative approach between industry, unions, and government is essential. Constructive industrial relations will ensure project timelines are met, costs are contained, and productivity gains are realised—delivering economic growth, high-skilled jobs, and world-leading infrastructure for the net zero, AI-enabled economy.

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 evolution of data centre technology—particularly in the context of AI—has significantly reduced the traditional barriers related to physical location. Previously, proximity to large population centres, undersea cables, or specific clients heavily influenced where data centres were built. Today, advances in fibre-optic communications, global cloud infrastructure, and remote network management have enabled data centre operators to situate facilities in almost any country with sufficient connectivity, power, and political stability.

AI workloads further reinforce this trend. Unlike legacy data centres, which may have been tightly bound to local users or specific businesses, AI-powered data centres often serve globally distributed applications that are not location-dependent. This means tech giants and hyperscalers can, and do, shop globally for the best combination of cost, security, energy reliability, and regulatory certainty. As a result, countries such as Singapore, Ireland, Iceland, and various US states compete vigorously for data centre investment by offering lower energy prices, tax incentives, regulatory efficiency, and guarantees around data security.

Australia, therefore, competes on a truly global stage. The flexibility of AI-powered operations means that unless Australia maintains competitive advantages—such as high workforce skill, reliable energy, regulatory clarity, and reputation for data security—investment and jobs in this sector may simply flow offshore. The ability to locate anywhere is not a theoretical risk; it is an ongoing commercial reality, evidenced by recent international investment patterns and site selection trends among the world's largest cloud and data infrastructure providers.

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.

Renewable Energy & Energy Security

Transitioning to renewable energy sources such as solar, wind, and battery storage is fundamentally reshaping Australia's energy landscape, but this shift is not without complexity. While renewables will form the backbone of Australia's future grid, the practical reality is that ageing thermal generators must be replaced in a carefully managed sequence, and base load energy requirements cannot be overlooked—particularly as demand intensifies from sectors like electric transport and data centres. The Department of Industry, Science, Energy and Resources (2023) notes that renewables alone may not provide the reliability and dispatchable power needed to ensure energy security, especially during periods of low generation. A balanced, technology-neutral approach to generation is required, underpinned by significant investment in both electrical infrastructure and local manufacturing capabilities.

Ensuring that Australia retains local manufacturing capacity for critical energy infrastructure is essential—not only to safeguard sovereign capability and supply chain resilience, but also to retain high-value skills within the domestic workforce. The ability to fast-track regulatory approvals for energy projects, invest in future-focused workforce training, and support local manufacturers will be crucial to delivering a reliable, affordable energy supply and realising Australia's net zero ambitions. For NECA members and the wider industry, certainty around local production and access to skilled professionals will underpin productivity gains and secure the sector's role in delivering, maintaining, and connecting the energy systems of tomorrow. NECA welcomes collaboration with government to develop a sustainable energy generation mix and to ensure that both Australia's electrotechnology workforce and its manufacturing base are equipped to meet the demands of a decarbonised, electrified economy.

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.

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 the 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

A projected shortfall of up to 32,000 electricians by 2030 threatens to delay key projects. Addressing this shortage is critical, and the government must invest in training and apprenticeships to ensure a skilled workforce.

Slow Infrastructure Approvals

Delayed infrastructure approvals are a major barrier to progress. Expediting approval processes, particularly for renewable energy, data centres and transport projects, will ensure that critical infrastructure is delivered on time.

Cybersecurity Risks

As Australia's digital infrastructure becomes more interconnected, the need for robust cybersecurity measures becomes paramount. Electrical contractors play a critical role in embedding cybersecurity protocols into the design, installation, and maintenance of critical infrastructure, ensuring operational technology and emerging systems are protected from increasing threats. However, there is currently a gap in mandatory standards and ongoing coordinated training and professional development for contractors relating to cyber risk in electrical and electrotechnology infrastructure.

To materially improve national productivity and resilience, government must support industry efforts by establishing clear, enforceable requirements for cybersecurity integration in all critical infrastructure projects, and by investing in workforce training and national certification programs for cybersecurity skills. This approach will not only mitigate the risk of costly cyber incidents and system downtime, but will also enhance investor confidence, attract high-value digital projects, and ensure the security and reliability of essential services.

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National Electrical Compliance Certification

Australia's current fragmented approach to electrical work certification, with each state and territory enforcing its own documentation, introduces avoidable complexity and inefficiency. The absence of a unified, centrally managed system for compliance certificates not only impedes productivity but also introduces unnecessary risk into the national energy system.

A single, nationally administered compliance certificate system—adhering to the highest standard currently in force—would immediately reduce duplication and administrative friction for businesses operating across borders. Nationally registered contractors and major firms currently waste substantial time reconciling compliance paperwork between states, each with differing forms, online platforms, and submission requirements. This inefficiency reduces workforce productivity, ties up resources in non-productive administration, and delays project delivery, especially on multi-state infrastructure and commercial projects.

A centralised system would allow instant access to compliance history, facilitate real-time data analysis for emerging safety trends, and provide a secure platform for consumers, insurers, and regulators to verify that work has been lawfully completed. It would also simplify recall or audit procedures in the event of product or workmanship defects, supporting swift regulatory and consumer action.

From a compliance standpoint, a unified system would close the gaps that currently allow unscrupulous operators to evade scrutiny by working across state boundaries. It would strengthen enforcement by providing a national audit trail, ensuring only properly licensed tradespeople perform regulated work and providing clear accountability for defective work. Regulatory bodies would be empowered to target non-compliance far more efficiently, and consistent reporting would foster public trust in electrical safety standards.

For government, the benefits are equally compelling. A central platform would facilitate data-driven policy, improve the allocation of compliance resources, and support best-practice regulation. The system would also underpin Australia's standing as a modern, competitive economy, removing an arcane barrier to seamless national infrastructure delivery.

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To arrange a meeting or discuss this proposal further, please contact:

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