POWERING AUSTRALIA

Cyan Ventures

Deloitte.

HORIZON 2035

Cleaner energy networks

About Powering Australia

Powering Australia is an Australian Government funded Industry Growth Centre under the Australian Made Battery Plan, helping Australian clean-tech manufacturing businesses grow faster and deliver high-value, locally made clean-energy products. We connect material producers to manufacturers, commercialise renewable technologies, and build the capability of Australian businesses and First Nations communities to participate in the energy transition.

We also deliver the Building Future Battery Capabilities Program which focuses on building Battery Workforce Skills and Training and the Demonstrator Stream which supports the commercialisation and scale-up of Australian battery technologies.

Powering Australia is championing clean-tech industries that generate sustainable jobs, boost economic resilience, grow domestic demand, industrial ecosystems and position Australia as a global leader in clean-energy innovation.

Acknowledgements

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Executive summary

As global energy systems decarbonise, new opportunities are emerging for Australia not only to deliver cleaner electricity networks, but to manufacture the equipment and services that support them. Australia's electricity networks currently account for 35%-45% of consumer electricity costs[1] and face unprecedented expansion pressures as renewables replace fossil fuels and clean-tech manufacturing grows. AEMO's 2024 Integrated System Plan projects up to 35,000 km of new transmission by 2050, with equipment costs rising 25%-44% and lead times extending to 2030, making domestic manufacturing capability essential for networks.[2]

Growing network equipment manufacturing offers substantial potential for new value and jobs, positioning Australia as a reliable exporter of specialised equipment and grid integration services essential to domestic and regional supply chains.

Custom solutions for off-grid and remote deployment, expanded transformer manufacturing capability, and distributed energy integration services stand out as the leading anchor opportunities, complemented by strategic procurement approaches. Approximately two-thirds of clean-tech manufacturing opportunities across all sectors are expected to be located in remote or off-grid areas requiring dedicated network solutions.

Developing these capabilities will strengthen Australia's energy security, reduce transition costs, and position Australian networks as a vital link of the clean energy economy.

Opportunity landscape

Australia's network manufacturing sector is an emerging opportunity, built on strong demand from renewable expansion and unique system requirements.

Anchor projects could capture a share of the $16 billion annual network investment projected through mid-century, supporting thousands of construction jobs and hundreds of ongoing manufacturing and service roles.

Australia is well positioned to capture a significant portion of this emerging market by leveraging its expanding grid requirements, renewable resources and advanced distributed energy experience to establish competitive network manufacturing industries.

Networks are the connecting infrastructure of the clean energy economy, and there are meaningful opportunities for First Nations partnership and engagement, producing custom off-grid systems, innovating integration technologies, and providing maintenance and deployment services.

These emerging network industries stand to enhance Australia's economic resilience by diversifying toward high-value, rapidly expanding sectors, while positioning the network sector as a vital contributor to the nation's transition to a clean energy future.

Pathway to achieving competitiveness

Australia has a narrow but strategic window to establish globally competitive networks manufacturing industries. To realise these opportunities, we must leverage our cost advantages, from renewable energy to regional demand, and focus national attention on growing sovereign capabilities in clean technology manufacturing.

To compete on the global stage, we need to focus on four key foundations:

1. Unique endowments
2. Demand
3. Industrial ecosystem
4. Strategy

Focusing on these pillars will grow Australia's capabilities from early leadership into sustainable industrial scale, boosting jobs and competitiveness. Achieving global relevance requires prioritising scale-up of proven technologies and supporting late-stage manufacturing development. Establishing focused industrial zones that unite manufacturing, transmission service providers and renewable developers will attract investment, unify supply chains and foster sustainable growth.

Australia has the potential, and now is the time to secure our place in network manufacturing's next era.

Notes/Sources: [1]Australia Energy Regulatory (2024). [2]AEMO NEM forecasts have been scaled to include WA and NT demand. A scaling factor of 1.2 is used, based on 2023-24 data showing NEM generation of ~213,000 GWh and national generation of ~255,800 GWh (AER, 2024, DCCEEW, 2025).

1. Unique endowments

Achieve competitive advantage by leveraging renewable resources, regional demand location, and established lower-voltage transformer capabilities to develop specialised off-grid and harsh-environment solutions.

2. Demand

Coordinate procurement frameworks across jurisdictions and transmission network service providers to create stable, long-term domestic demand signals for local manufactures.

3. Industrial ecosystem

Strengthen Australia's established networks manufacturing base through skills upgrading, facility digitisation, access to critical materials like grain-orientated electrical steel, and technology transfer for higher-voltage production.

4. Strategy

Implement strategic procurement machanisms, designate priority industrial zones in renewable-rich regions, and support market access for differentiated Australian products to Indo-Pacific neighbours.

"By pursuing anchor opportunities in network manufacturing, Australia could add up to **$6.8 billion** in economic value and **30,000 jobs** by **2035**."

Australia's established networks manufacturing sector already generates $7.1 billion in revenue and supports over 12,000 direct jobs.

Sector overview

Global production of high-voltage transformers, cables and conductors is dominated by a few manufacturers, with ~80% of Australia's high-voltage transformer needs currently imported and supply slots booked through 2030. Around two-thirds of clean-tech manufacturing projects target remote locations beyond existing grid reach, while Australia's strongest renewable resources remain distant from major load centres.

AEMO's 2024 Integrated System Plan (ISP) Step Change (moderate renewables) and Green Exports (high renewables/export) scenarios project transmission needs from 10,000-35,000 km by 2050. Power transformers and subsea High Voltage Direct Current (HVDC) cables face multi-year delivery delays into the late 2020s. Distribution systems confront rising complexity from distributed solar, electric vehicles, heat pumps and storage, demanding advanced control and integration solutions. Recent transmission builds average 100km - 284km per year against projected requirements of 400km - 1,400km per year.[3]

Global electrification is opening new industrial possibilities. Development of Renewable Energy Zones, distributed energy management systems, and off-grid industry hubs is creating demand for equipment tailored to extreme conditions and specialised grid needs. Australia brings proven lower-voltage transformer production, remote mining power systems expertise, and unmatched rooftop solar integration experience.

These strengths position Australia to pursue three anchor opportunities: custom solutions for off-grid and remote deployment, expanded transformer manufacturing into higher voltage classes, and distributed energy integration services. Each builds on established capabilities to address critical supply vulnerabilities and enable the broader clean energy transition.

Notes/Sources: [3]Whilst Green Exports is not considered a central scenario, it is explored in this report as the capacity forecasts are more aligned to what would be required to enable the cross-sectoral clean tech manufacturing opportunities (e.g. green iron, green ammonia, green aluminium, polysilicon).

Size of the prize: economic value

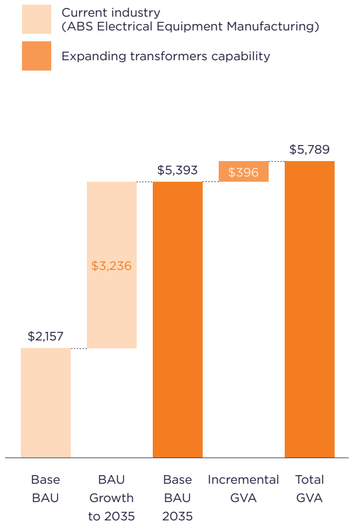
Australia's network equipment manufacturing is already an established industry and critical enabler of renewable energy rollout, with firms active across transformers, switchgear, and electrical equipment. The industry currently generates $7.1 billion in revenue and $2.1 billion in gross value added (GVA).[4]

Applying historical compound annual growth rates, the business-as-usual trajectory scales to $5.4 billion in GVA by 2035.[5]

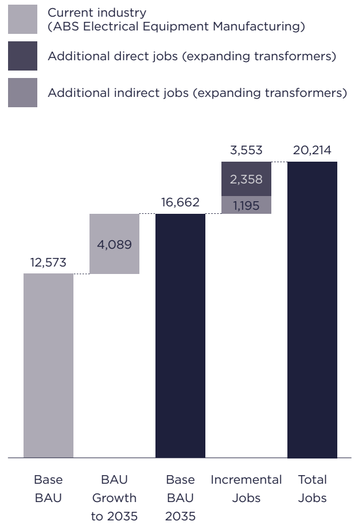
Anchor opportunities through expanded higher-voltage transformer capability create incremental value beyond this baseline. Under the Step Change scenario, achieving 50 domestic market share of generator step-up (GSU) transformer demand adds $400 million in GVA by 2035. Under the Green Exports scenario, achieving 75 domestic market share adds $1.5 billion in GVA by 2035.

Total sector GVA therefore reaches $5.8 billion under Step Change or $6.8 billion under Green Exports by 2035, nearly tripling today's contribution. This reflects replacing 80% current import reliance with domestic production sized to global viable scale.[6]

GVA by 2035 under Step Change Scenario (A$ million)

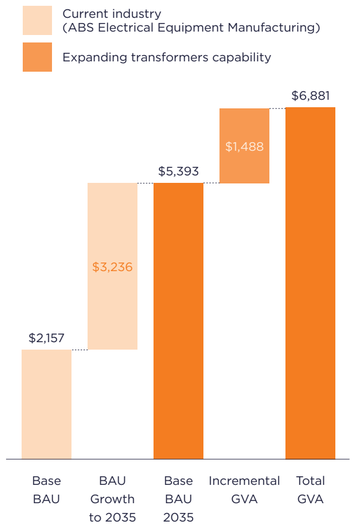


Jobs by 2035 under Step Change Scenario (FTE)

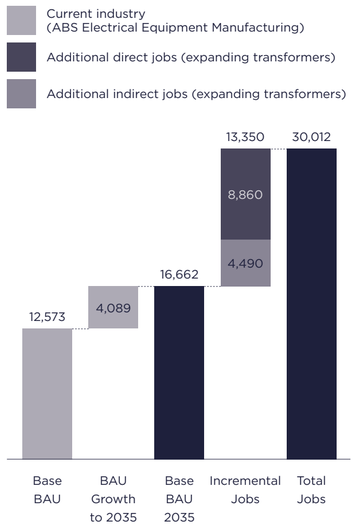


Notes/Sources: [4]ABS (2025). [5] Historical CAGRs calculated over the last five years from ABS manufacturing industry data for ANZSIC 2431 (Electric Cable & Wire Manufacturing) and ANZSIC 2499 (Other Electrical Equipment Manufacturing). CAGR results are as follows: cables revenue 6%, GVA 9%, jobs 1%; transformers & substations revenue 8%, GVA 10%, jobs 3%. See Appendix B for detail on ANZSIC mapping and data granularity.

GVA by 2035 under Green Export Scenario (A$ million)



Jobs by 2035 under Green Export Scenario (FTE)



Notes/Sources: [6]Deloitte & Cyan Ventures independent analysis. [7]Deloitte & Cyan Ventures independent analysis.

Size of the prize: jobs

The established network base provides over 12,000 direct jobs today across regional electrical equipment clusters. Business-as-usual growth sustains this to over 16,000 direct jobs by 2035.

Transformer capability expansion adds further employment. The Step Change scenario supports an additional 2,400 direct jobs by 2035, with total direct and indirect employment reaching 20,000. The Green Exports scenario supports an additional 8,900 direct jobs by 2035, with total direct and indirect employment reaching 30,000.[7]

These roles span skilled manufacturing activities including assembly, testing, and quality control in established facilities, while indirect jobs arise across supply chains, specialised logistics, and regional services supporting network deployment.

Custom off-grid solutions and DER integration services represent additional unsized opportunities likely captured within broader business-as-usual market growth.

Anchor opportunities

Three of our key pathways to success are identified as "anchor opportunities." These are opportunities with strong potential for Australia's long-term competitiveness and may also contribute to improving supply chain resilience.

Custom solutions for off-grid and remote deployment

Two-thirds of Australia's clean-tech projects locate in remote regions where grid connections take 7-9 years and cost billions. Custom off-grid power systems offer a faster, cheaper alternative using factory-built microgrids that deploy in just 2 years.

Australia's off-grid market generates $2-3.5B annually (25 TWh electricity) serving mines and remote communities.[8] Local companies design cyclone-rated modular towers, pre-wired substations, and rugged enclosures for extreme heat, Category D winds, red dust, and underground mining that overseas equipment can't match.

Exporting these niches (modular cyclone towers, factory-tested skids, and climate-sealed microgrids via joint ventures) turns Australia's remote power challenge into a global advantage for island nations and mining regions.

Notes/Sources: [8]DCCEEW.

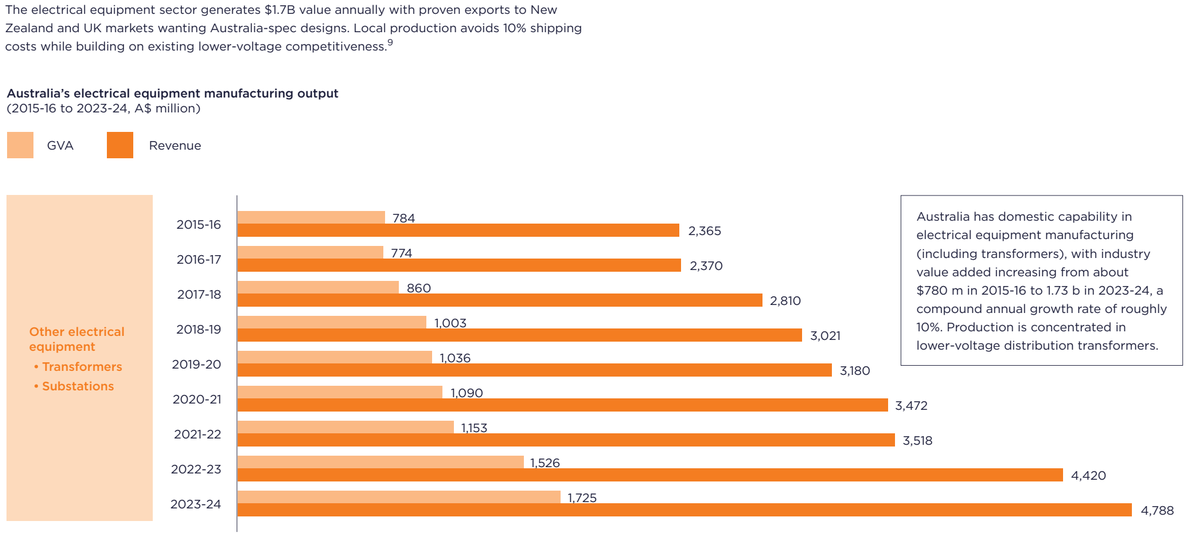
Higher voltage transformer manufacturing

Australia imports 80% of big grid transformers facing 25% price hikes and 3-year delays as clean energy scales. Local manufacturing offers 16-24 month delivery and supply security for thousands of units needed by 2050.

The electrical equipment sector generates $1.7B value annually with proven exports to New Zealand and UK markets wanting Australia-spec designs. Local production avoids 10% shipping costs while building on existing lower-voltage competitiveness.[9]

Strategic facility upgrades close cost gaps and create export scale, replacing import dependence with resilient domestic capability.

Australia's electrical equipment manufacturing output
(2015-16 to 2023-24, A$ million)



Australia has domestic capability in electrical equipment manufacturing (including transformers), with industry value added increasing from about $780 m in 2015-16 to 1.73 b in 2023-24, a compound annual growth rate of roughly 10%. Production is concentrated in lower-voltage distribution transformers.

Revenue and gross value added of Australia's electrical equipment market

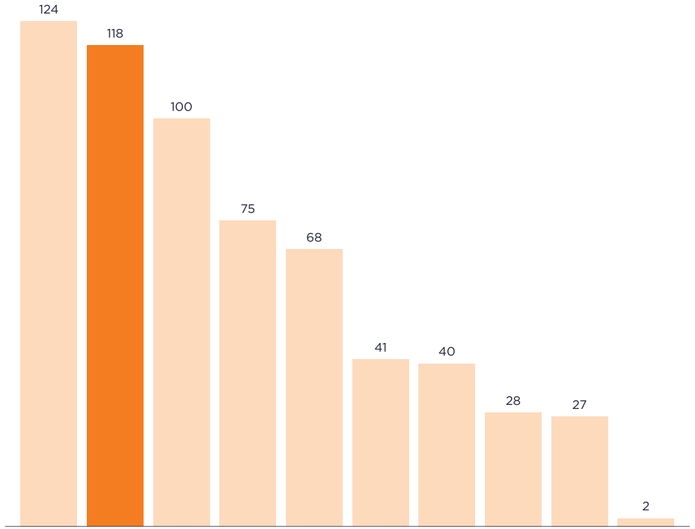
Notes/Sources: [9]ABS, Australian Industry (n.d.), 2015-16 to 2023

Distributed integration services

Australia leads globally with solar on one-third of homes, creating urgent need for services managing solar, batteries, and EVs to prevent grid instability. By 2035, projections show 4-4.8 million systems requiring advanced software orchestration.

This A$2.4B rooftop solar market generates 30.5 TWh annually, powering pioneering solutions like statewide dynamic export limits proven at scale by South Australia Power Networks and Virtual Power Plants delivering grid stability services. These innovations tackle extreme heat, remote grids, and voltage constraints that challenge global peers.

Exporting this grid-integration expertise establishes Australia as the worldwide benchmark as distributed energy adoption surges globally.[10, 11, 12]



Australian ranks alongside Germany as a global leader in distributed PV per capita

Notes/Sources: [10]Australian Energy Council (2024), AEMO (n.d.). [11]ARENA (2023), Kuiper (2024). [12]ARENA (2017), Energy & Mining (n.d.)

First Nations opportunities

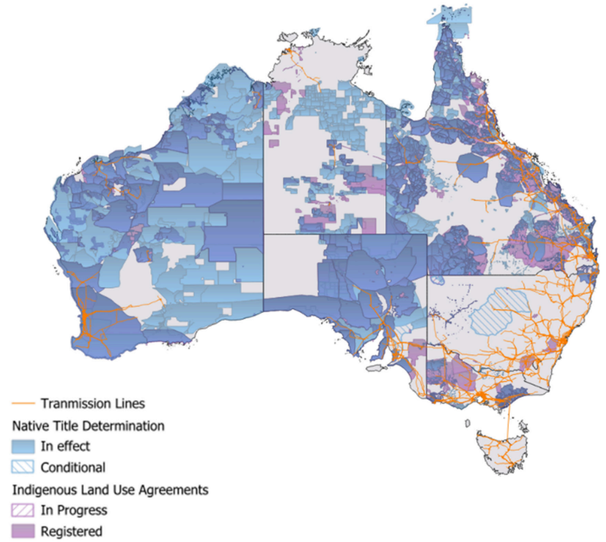
First Nations partnerships drive transmission network delivery. Transmission lines cross vast First Nations Country under Native Title and ILUAs, where leadership unlocks modular grid solutions and remote energy access through cultural expertise, local workforces, and co-designed infrastructure for faster approvals.

Three targeted pathways for First Nations enterprises:

- Land partnerships via ILUAs, equity stakes, and services deploying stand-alone power systems, modular substations, and remote microgrids.
- Manufacturing entry in transformers, modular skids, towers, and components near regional production hubs.
- Infrastructure services including construction, high-voltage testing, heritage clearance, environmental management, and operations.

These partnerships speed delivery and secure energy for remote communities through proven models like Marlinja Solar Microgrid, Australia's first fully First Nations-owned grid-connected solar system.[13, 14]

Notes/Sources: [13]First Nations Clean Energy Network (2024). [14]DCCEEW (2024).



Intersection of pipeline projects and inputs with First Nations Native Title or ILUA

Making it happen

There are several initiatives already underway that further actions can complement to support anchor opportunities in transformers, custom off-grid solutions, and grid integration services. Australia captures networks leadership through decisive, coordinated actions that turn potential into reality:

Secure strategic supplies to help close cost gaps (est. 40%-60%).

Standardise national procurement creating stable manufacturing demand

Execute strategic bulk buying to beat global supply bottlenecks

Enable export market access for Australia's unique grid solutions

These actions transform the $7.1 billion base into $14.5 billion scale by 2035. By mobilising Rewiring the Nation ($20 billion) and ARENA microgrids ($125 million) behind domestic capability, immediate industry-government execution establishes Australia as a trusted supplier in global networks supply chains.

Achieving Australia's potential

Australia can build network manufacturing leadership.

From high-voltage transformers and custom off-grid solutions to resilient supply chains and grid integration services, robust partnerships across industry, government and communities will power progress.

Coordinated action can position Australia's grid expertise as a vital contributor of global supply chains, delivering sustained economic value as the network sector continues to expand into 2035 and 2050.

Powering Australia invites industry leaders, policymakers, investors and communities to collaborate on delivering world-class network capability for the clean energy transition.

For details and team engagement, contact Powering Australia.

Acknowledgement

Powering Australia wishes to acknowledge the First Nations peoples of Australia and recognise their enduring connection to Country through culture, people, place and story. We honour the knowledge systems that have sustained these lands and waters for thousands of generations and recognise the vital role of First Nations leadership and self-determination in shaping a just and sustainable future. As Australia undergoes a significant clean energy and industrial transition, we acknowledge the importance of respectful partnership, cultural integrity, and shared purpose to realise the full opportunity of the clean energy transition.