



AUSTRALIAN
INDUSTRY
STANDARDS

SKILLS FORECAST 2019

ESI GENERATION

INDUSTRY REFERENCE COMMITTEE



CONTENTS

4

EXECUTIVE SUMMARY

6

**IRC
SKILLS FORECAST**

7

**ESI GENERATION
IRC SKILLS FORECAST**

8

**ESI GENERATION
INDUSTRY REFERENCE
COMMITTEE**

10

**ESI GENERATION INDUSTRY
OVERVIEW**

22

**EMPLOYMENT AND SKILLS
OUTLOOK**

28

**2018 INDUSTRY SKILLS
FORUMS**

29

**INDUSTRY LEADERS'
DINNERS**

30

REFERENCES

32

**PROPOSED SCHEDULE OF
WORK**

42

**AUSTRALIAN INDUSTRY
STANDARDS**

EXECUTIVE SUMMARY

Electricity generation constitutes an integral part of the Australian economy. It provided an estimated annual revenue of \$18.62 billion and added nearly \$6.2 billion to the economy in 2018. The industry employs over 11,500 people across Fossil Fuel and Renewable Generation.

The increasing adoption of new technologies has reshaped the industry's operations. The implementation of automated systems and data analytics capabilities has provided better energy security. These systems provide real-time data that enable remote operations, condition monitoring, and predictive maintenance of assets, resulting in increased efficiency and reduced costs. Research is being conducted on the application of Artificial Intelligence to predict changing weather conditions and anticipate energy demand which will further benefit the industry.

Digital technology is decentralising the grid as more and more consumers install photovoltaic (PV) and battery storage systems. The traditional energy consumers are now able to produce energy and either store the excess energy or send it back to the grid. This innovation has created virtual power plants, (cloud-based distributed power plants). Last year, South Australia successfully piloted the world's largest Virtual Power Plant, providing electricity during peak periods.

The industry is also moving towards carbon-free electricity generation. Coal-powered assets are ageing, and the industry is assessing the viability of continuing to use conventional power generation. To reduce environmental impacts, there have been large investments in renewable energy generation projects which have considerably increased energy generation from renewable sources. New technologies such as wind turbines, PV systems, and battery storage units will continue to grow and drive changes in skills needs of workers.

Governments around the world are working towards reducing the environmental impacts of power generation. Australia has a unique opportunity on the world stage to demonstrate the wide-spread deployment and sustainability of new technology and renewable sources of power generation. Research and development into these new methods of generation will continue to offer exciting opportunities to the industry.

As renewable technologies gain pace, more skilled energy workers will be in demand across the country. To this end, a national licencing model is required to enable a mobile workforce whose skills can be used across different states and territories.

In response to recent advancements, the IRC has identified the need to review and revise skills related to renewables, especially first responders to renewable installations. Effective and future-oriented workforce development strategies need to be implemented by the industry to build a skilled workforce, able to meet future challenges and seize career opportunities.



Richard Harvey

ESI Generation IRC Chair

This IRC Skills Forecast was agreed to by the ESI Generation IRC on 29 April 2019.



IRC SKILLS FORECAST

The Industry Reference Committee (IRC) Skills Forecasts focus on the prioritisation of the skill needs of the industry sectors each IRC has responsibility for. They are developed and reviewed annually and submitted on behalf of the IRC to the Australian Industry and Skills Committee (AISC) for approval.

The document is deliberately brief. It does not seek to identify every issue within every sector. It is a snapshot of a continually evolving story that is intended to alert and inform a wide audience and enhance the industry's capacity to act.

IRCs are required to consult broadly with stakeholders to ensure a whole-of-industry view about the opportunities and challenges for the workforce and the Training Package review work necessary to meet industry needs. The information is then used to develop the four-year IRC Proposed Schedule of Work.

ESI GENERATION IRC SKILLS FORECAST

This annual IRC Skills Forecast will be submitted by the ESI Generation IRC to the AISC for approval.

The IRC Skills Forecast identifies the priority skill needs of the ESI Generation industry following a research and stakeholder consultation process conducted by Australian Industry Standards (AIS) on behalf of the IRC.

Once approved by the AISC, the IRC Skills Forecast informs the development of a four-year rolling National Schedule for review and development work within the UEP Electricity Supply Industry - Generation Sector Training Package.

More information on the National Schedule can be found at: www.aisc.net.au/content/national-schedule.

ESI GENERATION INDUSTRY REFERENCE COMMITTEE

The ESI Generation IRC has been assigned responsibility for the UEP Electricity Supply Industry - Generation Sector Training Package.

More information about the ESI Generation IRC and its work can be found here: <http://www.australianindustrystandards.org.au/committee/esi-generation-sector-industry-reference-committee/>

ESI GENERATION IRC MEMBERS

Richard Harvey (Chair)

AGL

Tony Saxby (Deputy Chair)

Delta Electricity

Jason Watson

Thomson Bridge

Mark Burgess

Electrical Trades Union

Tony Hawes

Origin Energy

Vanessa Garbett

Electrical Regulatory Authorities Council

Yvonne Webb

Industry Skills Advisory Council Northern Territory

For more information please contact:

Jason Lazar

ESI Generation Industry Manager

Australian Industry Standards

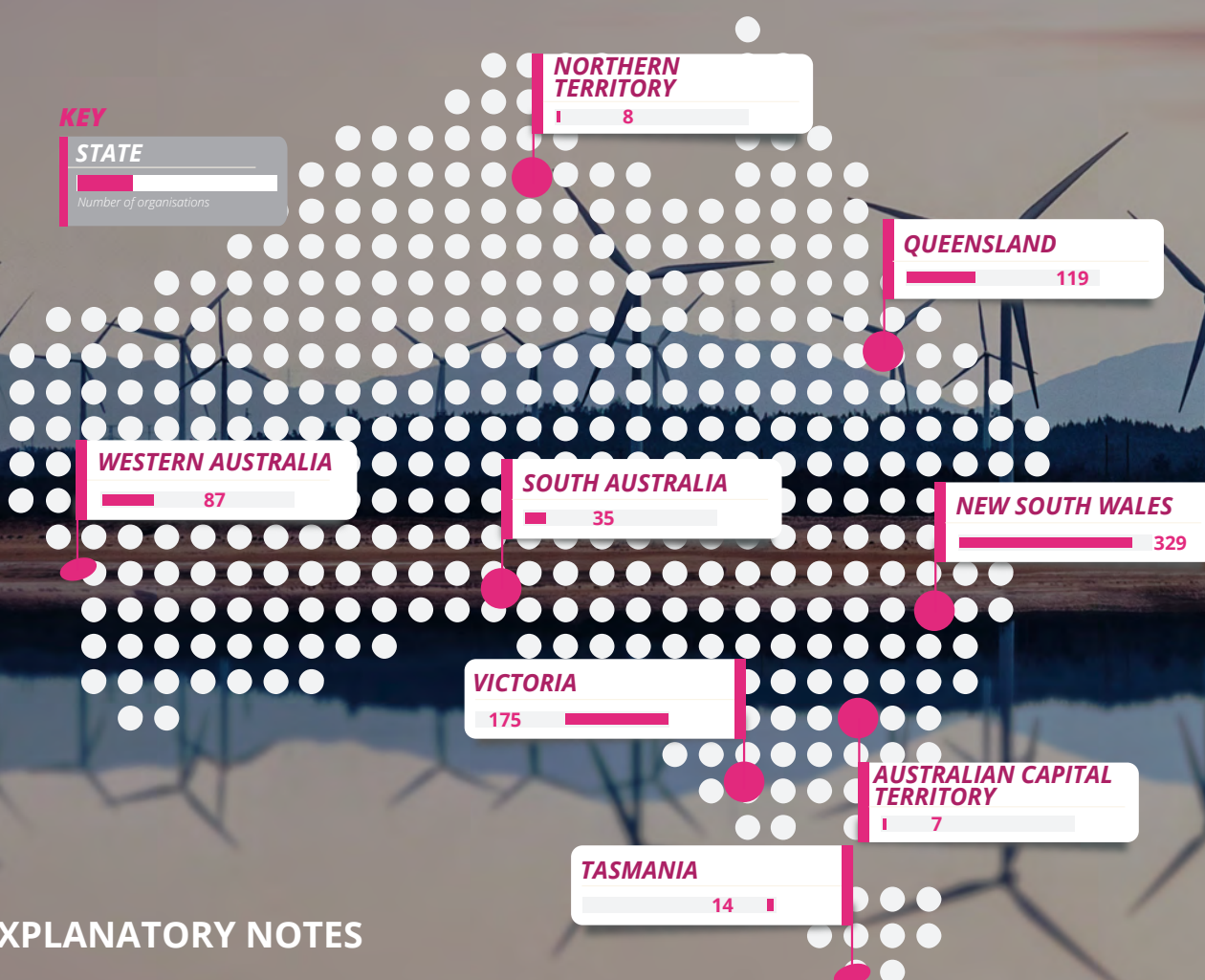
M 0417 903 566

E Jason.lazar@australianindustrystandards.org.au

ESI GENERATION INDUSTRY OVERVIEW

The ESI Generation industry has an estimated annual revenue of \$18.62 billion, adding \$6.2 billion to the Australian economy in 2018. The industry employs over 11,500 people across Fossil Fuel and Renewable generation. Although the demand for electricity is expected to increase

over the next five years, public concern about the environment represents a significant challenge for the industry.



EXPLANATORY NOTES

Counts of Australian Businesses

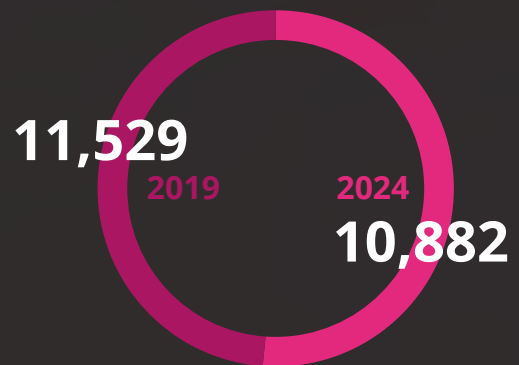
Distinct from the Census and Labour Force data, the Counts of Australian Businesses data uses a top down approach where industries are primarily classified by the single predominant industry class associated with a business' ABN. A limitation of this approach is that organisations with a presence in several States/Territories will be counted only once. This can lead to enterprise figures appearing low for a given state/territory, but it's not that there are no enterprises existing in the state/territory, it's that the headquarters are located elsewhere. A further consideration is that organisations in more than one industry will also be only counted in one industry.

WORKFORCE AGE

AT 43.8 YEARS OLD, THE TYPICAL WORKER IS **3 YEARS** OLDER THAN THE NATIONAL AVERAGE.

THE WORKFORCE IS AGEING AT **0.4 TIMES** THE NATIONAL RATE

WORKFORCE SIZE



BUSINESS COMPOSITION

752
SMALL
BUSINESS

30
MEDIUM
BUSINESS

13
LARGE
BUSINESS

GENDER DISTRIBUTION

75%  **25%** 



EMPLOYMENT
GROWTH TO 2024

-5.6%

INDUSTRY VALUE YEAR 2018-19

REVENUE
\$18.62B

**+\$6.2B
TO GDP**

KEY ESI GENERATION STAKEHOLDERS

Employers

- AGL
- Alcoa Australia
- Alinta
- Aurora Energy
- Ausgrid
- AusNet Services
- Delta Electricity
- Endeavour Energy
- Energex
- Energy Australia
- Engie
- Envion
- Ergon Energy
- ERM Power
- Essential Energy
- General Electric
- Goldwind
- Horizon Power
- Jemena
- Metro Power Company
- Newcrest Mining
- Origin Energy
- Power and Water
- Powercor Australia
- SA Power Network
- Siemens
- Snowy Hydro
- Suzlon Energy
- Synergy
- Territory Generation

- TransAlta
- Transfield Worley Power Services
- United Energy Distribution
- Vestas
- Western Power

Employer Representatives

- Australian Pump Industry Association
- Australian Energy Council
- Clean Energy Council
- Energy Networks Australia
- The Australian Power Institute

Employee Representatives

- Australian Services Union
- Electrical Trades Union

Licensing / Regulatory

- Australian Energy Market Commission
- Australian Energy Regulator
- Safe Work Australia

Government

- Federal, State/Territory Departments

Industry Advisory

- State Industry Training Advisory Boards (ITABS)

Training Organisations

- TAFEs, Private RTOs, Enterprise RTOs



UEP ELECTRICITY SUPPLY INDUSTRY - GENERATION SECTOR TRAINING PACKAGE

THE UEP ELECTRICITY SUPPLY INDUSTRY - GENERATION SECTOR TRAINING PACKAGE COMPRISES

14

QUALIFICATIONS

4

SKILL SETS

236

UNITS OF COMPETENCY

and associated assessment requirements and covers generation operations and maintenance, large scale renewables and remote area supply.

The UEP Electricity Supply Industry - Generation Sector Training Package provides the only nationally recognised Vocational Education and Training (VET) qualifications for occupations involved in plant operations support, systems operations, plant operations, electrical and mechanical maintenance and large-scale wind generation maintenance.

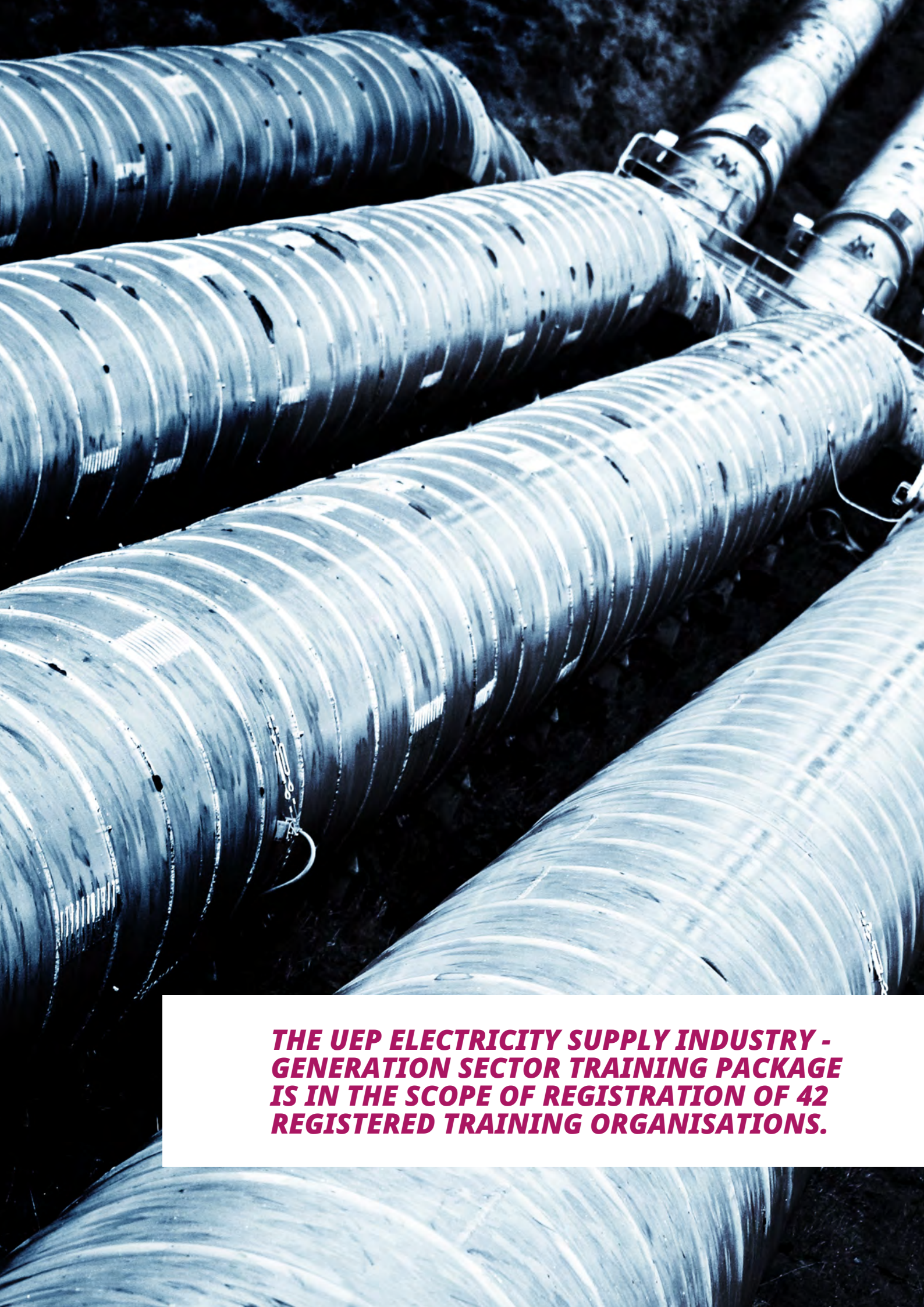
The UEP Electricity Supply Industry - Generation Sector Training Package contains the following qualifications:

Certificates

- Certificate II in ESI Generation - Operations Support
- Certificate II in Remote Area Essential Service
- Certificate III in ESI Generation - Systems Operations
- Certificate III in ESI Generation - Operations
- Certificate IV in ESI Generation - Operations
- Certificate IV in ESI Generation Maintenance - Electrical Electronics
- Certificate IV in ESI Generation Maintenance (Fabrication)
- Certificate IV in ESI Generation - Systems Operations
- Certificate IV in Large Scale Wind Generation - Electrical
- Certificate IV in ESI Generation Maintenance (Mechanical)

Diploma - Advanced Diploma

- Diploma of ESI Generation (Maintenance)
- Diploma of ESI Generation - Operations
- Diploma of ESI Generation Maintenance - Electrical Electronic
- Diploma of ESI Generation - Systems Operations



**THE UEP ELECTRICITY SUPPLY INDUSTRY -
GENERATION SECTOR TRAINING PACKAGE
IS IN THE SCOPE OF REGISTRATION OF 42
REGISTERED TRAINING ORGANISATIONS.**

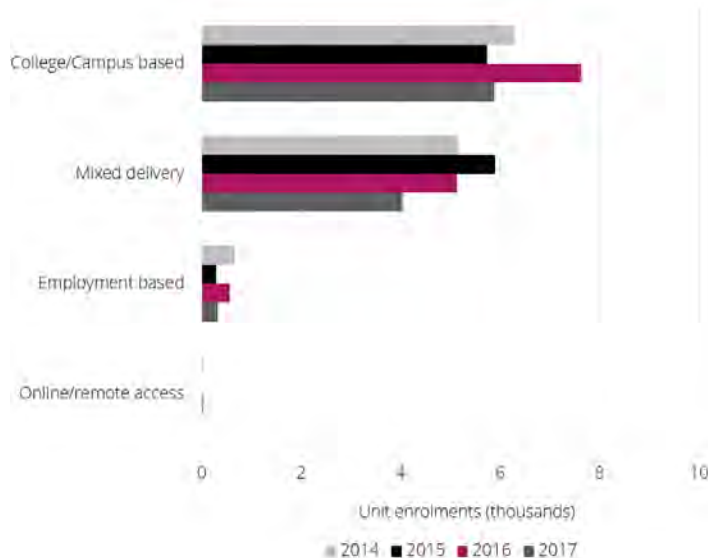
TRAINING DATA

The charts below investigate commencing qualification enrolments by apprentice/trainee status in each State and Territory along with Unit enrolments by delivery type over four years. At the national level, qualification enrolments in the UEP Training Package have decreased by nearly 7% over the last four years while Units of Competency enrolments have decreased by 15.5%.



QUALIFICATION ENROLMENTS BY STATE/ TERRITORY

Queensland is the obvious standout here, accounting for nearly 64% of all enrolments in the country over the last four years. IRC feedback suggests that enrolments often coincide with the opening of new generation plants in the respective states/territories. Staff in the Generation industry are trained, some organisations offer their own in-house training and use the Training Package as a benchmark, so are not counted in this enrolment data.



UNIT ENROLMENTS BY DELIVERY TYPE

Only four units; UEPOPS349B Operate Local H.V. switchgear, UEPOPS428B Develop H.V. switching programs, UEPOPS456A Perform switching to a switching program and UEPOPS525A Coordinate and direct switching program, accounted for 70% of all enrolments for the UEP12 Training Package for the last four years. Of these enrolments, 90% were subject only, that is, not delivered within any vocational or non-vocational courses.

EXPLANATORY NOTES

Training Charts

Total VET Activity (TVA) data is collected from all types of training providers and not only those in receipt of Commonwealth or State funding. TVA data collection commenced in 2014. A number of apprentices (electrical, mechanical, fabrication) in UEE11 qualifications are employed in the ESI Generation workforce but aren't captured in the training charts which are limited to UEP. For Enrolments by Delivery type 'Other' includes; Recognition of Prior Learning (RPL), Credit Transfers and Units where the mode of delivery is mixed.

Exemptions

Where the submission of training data to TVA conflicts with defence or national security legislation or jeopardise the security or safety of personnel working in defence, border protection, customs or Australian police departments, an exemption from reporting training data is available.

Organisations that deliver training for vital services to the community (such as emergency, fire, first aid and rescue organisations) may have received an exemption to submit data to TVA. From 1 January 2016 however, the exemption from reporting applies only in respect of training activity not delivered on a fee for service / commercial basis.



CHALLENGES AND OPPORTUNITIES

AUTOMATION AND DIGITALISATION ARE TRANSFORMING THE INDUSTRY

The widespread implementation of digital and automatic systems has had a significant impact on the ESI Generation industry. The adoption of automated systems, data collection, and application of data analytics have enabled better energy availability, remote operation and monitoring, predictive maintenance, and reduced operational costs.¹ Research is being conducted to use Artificial Intelligence to predict changing weather conditions in order to predict and forecast demand for utilising renewable resources.²

Automation can be applied either to a relatively small part of a larger control system or scaled up to fully automate power station processes.

Automation and digitisation work hand-in-hand to provide data and improve operational efficiency.³ With the help of data, predictive analysis tools are also assisting and enhancing maintenance activity. Predictive analytics, which uses sensor data, can process, monitor conditions, and forecast electrical demand.⁴ These tools will also be able to provide early warnings of emerging reliability, efficiency, environmental and safety compliance issues.

These smart technologies and systems are beneficial and will present both challenges and opportunities for the ESI Generation industry. They can enable the harmonious integration of different generation sources into the electricity grid. As these new technologies become more common, upskilling the current and future workforce will be essential to meet new skill demands.

THE GRID IS BEING DECENTRALISED

Digitalisation and innovative technologies, such as home-based solar panels, have changed the electricity grid from its traditionally centralised structure to be more decentralised, which includes 'prosumers' (consumers of electricity who are producers as well). Electricity consumers can send their excess solar power energy back into the grid.⁵ These innovations have enabled Virtual Power Plants (VPP) which are cloud-based distributed power plants that can integrate several types of power resources and battery storage systems and orchestrate the release of electricity into the grid. VPPs offer consumers the opportunity to tap into their stored solar power during peak times.⁶ The world's largest VPP has already been set up and piloted in South Australia which involves 1000 interconnected batteries in homes and businesses. The South Australian government has revealed plans to connect 50,000 homes using solar power generation and battery storage, an \$800 million project which is 50 times larger than the current VPP in Adelaide.⁷ These changes in energy distribution have the capacity to drastically change the energy market, with companies being able to purchase power off consumers as required.

These innovations will require the workforce to upskill to respond to changes. More workers will be required to work from remote operating centres to monitor and review demand in real-time and analyse and interpret data that is generated from home-based batteries and VPPs. Training in battery storage safety procedures is critical for current and future workforce skill needs.

DIGITAL LITERACY IS ESSENTIAL

Digital transformation is completely revamping every aspect of life and the workforce. New technologies and devices are widely used in the workplace, creating digitally-enabled environments that affect numerous occupations. Digital literacy and Information Communication Technology (ICT) skills are required to respond and adapt to the fast pace of implementation of these technologies. Digital literacy is defined as having practical skills in using technology to access, manage, manipulate, and create information as well as the skills to critically analyse, interpret and apply the information to relevant situations. Digital literacy also encompasses more technical skills in programming and coding, data analytics, technology design, system analysis, and presenting and managing content on the web to develop applications and manage networks.^{8 9}

Advancements in Artificial Intelligence, computer technology, automation, the Internet of Things, cloud computing, big data, customer-service platforms and social media are generating a massive volume of data and information, offering a range of benefits such as improved customer service and operational efficiency. In line with the Australian Government's National Innovation and Science Agenda,¹⁰ training and upskilling in digital literacy will help drive economic prosperity.

Digital technologies can offer a potential \$1.3 billion of benefit per year for the electrical power sector alone.¹¹ This will require a digitally competent workforce with a range of skills, from basic ICT skills to specialist skills, to manipulate and interpret data in a meaningful manner and deploy technologies more effectively.

Data is the driver of improved customer service which is offered through digital platforms. Data specialists can provide organisations with insights into consumer behaviour. Organisations can use the data and insights that have been sourced from digital services and platforms to tailor consumer relationship processes. Programming skills will be pivotal as they are required in the design, construction and delivery of educational materials via digital platforms that enable interaction with consumers. Consumers are also increasingly demanding digitalised services, allowing them to directly communicate with service providers via smart devices and social media channels. The design and build of these digitalised service systems and their usability for consumers will be critical in order to attract and retain consumers.¹²

System thinking mindset is also required for the installation and maintenance of technology to ensure the equipment is configured correctly.

In a recent survey, employers prioritised digital technology training development for managers (33%) followed by technicians/trades workers, and professionals at 18 and 16 per cent respectively.¹³ Digital skills have been ranked as the second highest-priority skills needs with 64 per cent of IRCs listing them in their skills forecasts.¹⁴ Participants at the AIS national Industry Skills Forums through 2018 also emphasised digital literacy as a highly significant skill in demand.

Australia is very well positioned to be a leader in the digital economy. This will be enhanced through continued planning and investment in educational programs to train and upskill the existing and future workforce in digital literacy.

INDUSTRY-SPECIFIC CYBER SECURITY IS REQUIRED

The growing pace of new innovations and technologies is accompanied with increasing exposure to cyber security threats. Cyberattacks are a common risk to many industries including the ESI Generation sector. According to a research report, 95 per cent of Chief Information Officers believe that cyberattacks will increase and impact organisations in the next three years.¹⁵ Australia has also been identified as the nation most under cyberattack threats in the Asia-Pacific region with 80 per cent of companies reporting a total of 5,000 threats a day,¹⁶ incurring a cost of \$29 billion per annum to Australian businesses.¹⁷ Over two thirds (69 per cent) of Australian businesses report experiencing cyber fatigue against cyber threats.¹⁸

Awareness of the nature of cyber security threats and skills to detect, report and resolve the issues remain a challenge. Under the Notifiable Data Breaches (NDB) scheme, established in early 2018, organisations that suffer a data breach causing serious harm to individuals are required to alert the Office of the Australian Information Commissioner (OAIC). They must also inform the affected customers/clients whose confidential data is breached.¹⁹ This, in turn, could entail financial and/or reputational loss if a breach occurs due to lack of proper cyber security skills and procedures. About 66 per cent of Australian CEOs regard cyber security capabilities among the top three most

18

important workforce capabilities to foster.²⁰ This was supported at the AIS national Industry Skills Forums where the vast majority of participants considered cyber security to be a highly significant issue to their organisations.

The unique nature of the ESI Generation industry and technologies such as automated systems, interconnected devices, digital sensors, etc., can expose the industry to growing cyber security risks. The Finkel Review into the future security of the National Electricity Market also recommended an annual report about the cyber security preparedness and capabilities of the energy sector. In response, the Australian Energy Sector Cyber Security Framework (AESCSF) has been developed to consistently assess and provide insights into the cyber security maturity of the energy sector and a foundation for industry assessment.²¹

Cyber security specialists have been identified as one of the most critical roles for the future. The electricity grid has become more dependent on digitally connected information systems which require highly trained workers with the skills to protect not only consumers' personal information but also grid infrastructure. Cyber Security specialists can plan, develop, maintain, manage and administer organisations' database management systems, operating systems, security policies and procedures. This will help ensure optimal database and system integrity, security, backup, reliability and performance. A weak security system can have catastrophic impacts on the Australian economy and become a substantial barrier to the implementation of emerging technology.²²

In the light of such serious safety risks, it is imperative to have a tailored cyber security training program not only to inform the workforce of the nature and examples of the ESI Generation industry cyberattacks, but also give them the skills and competencies to be able to resolve them. Businesses need to continue to raise awareness about the issue, have proper procedures in place and deploy the right technologies to help identify, block or remediate any malicious attacks. Investing in skills and capabilities through educational programs is key to understanding cyber security and being protected from cyber threats.



DECARBONISATION AT THE CORE OF THE INDUSTRY

Initiatives are being implemented worldwide which aim to reduce the effects of human-induced emissions on the environment. In line with the Paris Climate Agreement of 2016, the Government of Australia has pledged to reduce its CO₂ levels to below 26-28 per cent of 2005 emissions by 2030.²³ To reach these targets, the ESI Generation industry will face significant challenges and opportunities to contribute to reducing emissions from generating electricity.

Power generation accounts for 33 per cent of Australia's emissions and is the largest share of emissions in the national greenhouse gas inventory.²⁴ New methods and technology to improve the efficiency of electricity generation are being investigated for conventional coal powered systems. One method is Carbon Capture and Storage (CCS) which captures CO₂ at a major emission source such as a coal or gas-fired power station and compresses it to a dense state so that it may be transported (by pipeline) to a site where it can be injected into a deep underground rock formation and permanently stored. This method can reduce emissions from coal fired power stations by around 85 per cent.²⁵



New developments in alternative methods such as wind and solar electricity generation will lead to considerable emission reduction which, in turn, will require the workforce to be upskilled in new technologies and innovations that emerge.

COAL PLANT WORKERS NEED UPSKILLING

Energy use for electricity consumption dropped by two per cent in 2016-17 due to increasing adoption of renewable generation and a drop in brown coal use.²⁶ Due to the increasing use of wind and solar generated electricity, reliance on coal has been gradually declining from more than 80 per cent at the beginning of the century to 61 per cent in 2017.²⁷

Ten of Australia's coal plants have already shut down and by 2030 about 55 per cent of the existing coal plants will be over 40 years old.²⁸ The issue is compounded by concerns about the ageing of assets and the costs of maintaining older generation assets, coupled with the competition from renewable sources. With the increasing affordability of renewables and the decreasing demand for coal-power generation, there is an opportunity to retrain coal plant workers to enable them to transition into the renewable energy workforce.²⁹

RENEWABLES ARE BRINGING THE WINDS OF CHANGE

Renewable energy sources have diversified significantly in the past few years. Recent government policies promote the adoption of renewable electricity generation, including sources from wind, solar, hydro, and bioenergy. The share of Australia's total electricity generation that comes from renewable sources is currently around 16 per cent and is expected to grow.³⁰ This diversification improves security of energy supply and can offer many opportunities. The growing popularity and affordability of renewables requires the industry to ensure the workforce has the required skills and can adapt to new processes.

WIND, SOLAR, AND HYDRO ARE DIVERSIFYING THE NETWORK

Pumped hydro is the most widely deployed large-scale energy storage technology. It involves pumping water from a storage reservoir at a lower elevation to a storage reservoir at a higher elevation, and later releasing it through turbines to generate electricity.³¹ There are 22,000 potential pumped hydro sites identified across Australia.³² Back in 2000-2001, hydro power accounted for 95 per cent of renewable energy³³ production, but



due to the wider adoption of other renewable technologies, hydro power currently makes up 40 per cent of renewable energy generation.

Wind and solar power made up 5.7 and 3.4 per cent of the national total electricity generation in 2016-17 respectively.³⁴ These technologies are predicted to reduce the residential electricity prices 6.2 per cent on average over the next two years.³⁵ There is also a \$668 million project in Western Australia to build a facility which generates electricity from waste. The facility will deliver approximately 36 MW of electricity which is enough to power 50,000 households.³⁶ In this facility, the first of its kind in Australia, waste can be gasified or combusted to produce electricity.³⁷

The workforce requires upskilling and retraining in the production and maintenance of emerging renewable technologies.³⁸

FIRST RESPONDERS TO RENEWABLE INSTALLATIONS

Australia is experiencing a steady growth in the development of renewable technologies and the country is ranked the fifth most attractive nation for renewable energy investments, according to the latest annual global ranking.³⁹ More than 50 large-scale wind and solar projects are either

under construction or scheduled to start in the near future, representing more than 8300 MW generating capacity and \$10 billion in investment.⁴⁰ The world's biggest battery storage is running in South Australia, injecting electricity into the grid to meet peak demands. Investments in such projects will continue to grow in future.

The increasing interest and investments in renewable technologies, especially wind and solar power, will continue with \$20 billion in investment across the country, creating more than 13,000 jobs.⁴¹ Such an unprecedented boom in the industry requires the Training Package to reflect the emerging trends and new skills related to renewable technologies. Particularly important to the industry is the oversight of renewables and first responders with skills for installation, maintenance, and operation of equipment. First responders play a crucial role as they ensure energy supply is not disrupted in case of an emergency.

REMOTE AREA SERVICES

Power generation in remote areas, also known as off-grid areas, is mainly provided through diesel generators which rely on gas. The increasing gas prices and environmental concerns have urged the industry to seek alternative methods of generating power in these areas. Technologies such as solar arrays and battery storage are being increasingly



TECHNOLOGIES SUCH AS SOLAR ARRAYS AND BATTERY STORAGE ARE BEING INCREASINGLY INSTALLED AND INCORPORATED INTO GAS-POWERED DIESEL GENERATORS TO IMPROVE SUSTAINABILITY AND REDUCE RELIANCE ON GAS.

installed and incorporated into gas-powered diesel generators to improve sustainability and reduce reliance on gas. The addition of these systems has converted diesel power stations to solar hybrid systems. In 2017, a \$59 million ARENA project integrated 3.325 MW of photovoltaic (PV) into diesel power systems across ten remote indigenous communities which has improved energy reliability and security in remote areas, creating more sustainable communities.⁴²

Further integration of renewable energy will provide economic benefits to remote and indigenous communities. Application of renewable energy can reduce the cost of providing electricity to off-grid communities and increase their viability. The Regional Australia's Renewables (RAR) initiative supports trials of renewable energy solutions/projects in regional and remote areas.⁴³ This initiative also assists in knowledge sharing and skills development in its scope⁴⁴ that can provide further employment opportunities for remote regions and indigenous communities. The UEP Training Package needs to keep pace with the skills required in the Generation industry to assist in ensuring long term sustainability of remote areas.

A NATIONAL LICENCING MODEL IS NEEDED

The ESI Generation IRC identified the lack of a national licencing model for workers in the industry as an issue that needs to be addressed. The widespread adoption of new technologies and renewable projects across the country means that the workforce will also need to become more mobile. A unified licencing model will enable the industry to benefit from the skills of more qualified workforce across the country.

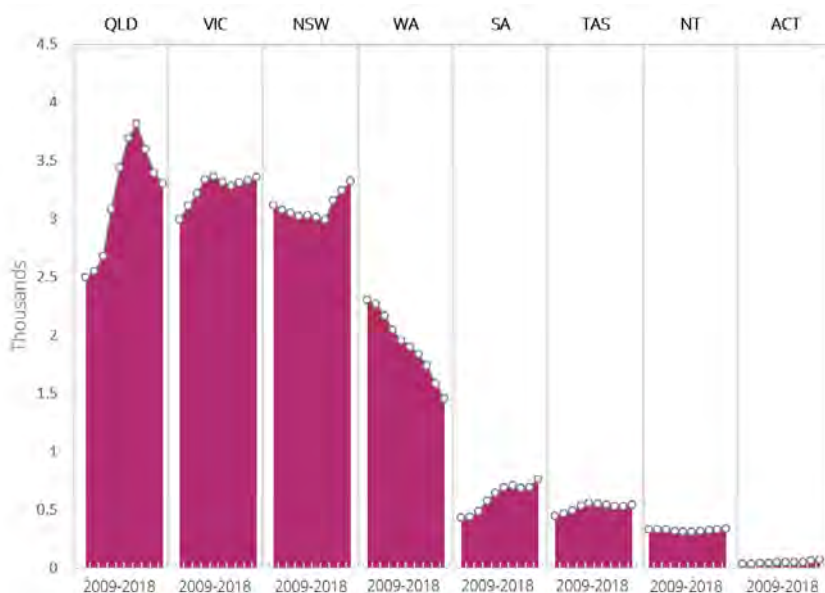
REGULATION AND TRAINING

The National Electricity Law applies to all companies involved with the National Electricity Market (NEM). This regulation is to provide efficient investment, operation, and ensure long-term interests for consumers.⁴⁵ The industry is also heavily regulated at a state level, particularly regarding technical and compliance legislation. Significant stakeholder consultation, and project feedback from the ESI Generation IRC and Technical Advisory Committees (TACs) has indicated that the UEP ESI – Generation Sector Training Package has not kept pace with the changes in the industry. There will need to be ongoing review of the UEP ESI – Generation Sector Training Package to investigate any new skill and regulatory requirements for the workforce.

EMPLOYMENT AND SKILLS OUTLOOK

EMPLOYMENT DEMOGRAPHICS

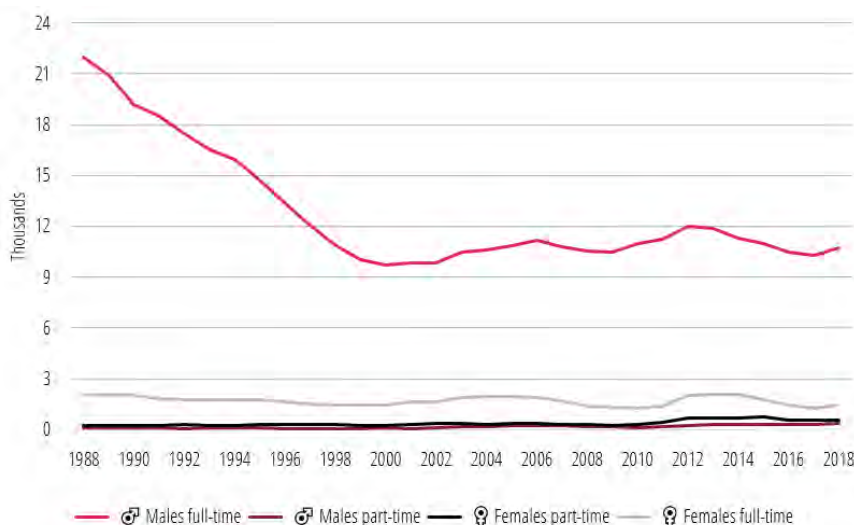
The following charts provide an overview of the ESI Generation workforce at a glance. These include workforce by State/Territory, gender-composition by employment type, and the projected employment for the next five years.



ESI GENERATION WORKFORCE BY STATE/ TERRITORY (2009 – 2018)

The labour market for electricity generation workers in Queensland appears to be the most volatile of all States and Territories, increasing and decreasing sharply around a peak in 2015. The extent of the decline in the Western Australian workforce was not corroborated in the Census data where more modest declines of around 2% were seen between 2011 and 2016 (the available Census years).

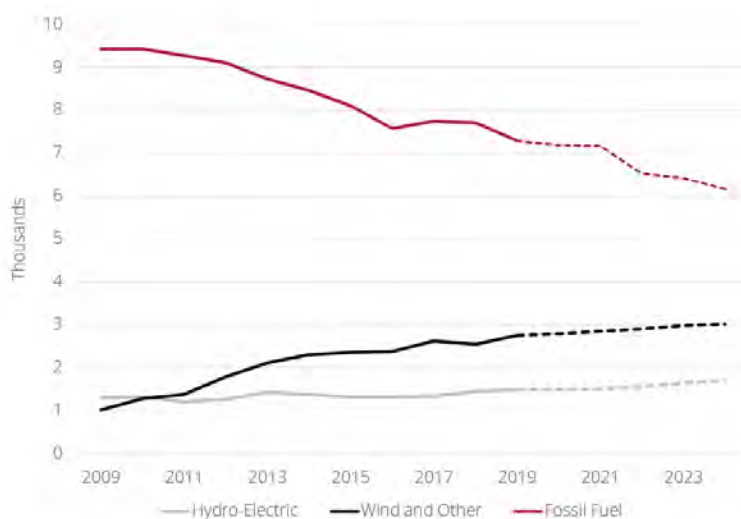
Source: Australian Bureau Statistics (2017)
6291.0.55.003 - Labour Force, Australia, Detailed.
Australian Government.



GENDER BY EMPLOYMENT TYPE

The number of females in the industry has actually fallen 12% over 30 years, though this should be viewed in the broader context of workforce decline for electricity generation up to the turn of the millennium. In the medium term, the rate of females entering the workforce has increased and especially so in the last decade where the annual growth rate for females (2.4%) is eight times greater than the rate of males entering the industry.

Source: Australian Bureau Statistics (2017)
6291.0.55.003 - Labour Force, Australia, Detailed.
Australian Government.



PROJECTED AND HISTORICAL ESI GENERATION WORKFORCE (2009 – 2024)

The renewable energy generation workforce is expected to increase by 11.2% over the coming five years which will offset 42% of the projected decline in the fossil fuel generation workforce.

Source: IBISWorld Reports.

EXPLANATORY NOTES

Labour Force Data

Outside of Census years, the size of an industry's workforce is established by the Australian Bureau of Statistics using the Labour Force survey. This dataset provides a 30-year view of the industry where, like the Census, industry is assigned at the discretion of the individual respondent. Given that the survey is sample-based, it should also be understood that the smaller the industry being measured, the larger the margin of error.

The scope of the Labour Force survey is limited to the civilian population of Australia and therefore members of permanent defence forces are excluded from the survey.

IBISWorld Data

IBISWorld data is comprised from a variety of economic, demographic, government and company data, including the Australian Bureau of Statistics.

PRIORITY SKILLS

The priority skills of the ESI Generation industry are drawn from stakeholder responses to the ESI Generation IRC Skills Forecast survey conducted between 11 September 2018 and 14 January 2019.

SKILL CATEGORY

In order of priority to the industry, the following skills were identified from the survey as the most important for the ESI Generation workforce within the next three to five years.

- 1** HEALTH/SAFETY
- 2** MAINTENANCE/SERVICING
- 3** OPERATIONAL (PLANT, CONTROL SYSTEMS)
- 4** ELECTRICAL
- 5** CODING/PROGRAMMING

GENERIC SKILLS

The Generic Skills listed are provided to AIS by the Department of Education and Training. Within the survey, the IRC asks stakeholders to rank these skills in order of importance to the industry. Ranking of the 12 generic workforce skills in order of importance to the ESI Generation industry are as follows:

- 1** TECHNOLOGY
- 2** DESIGN MINDSET / THINKING CRITICALLY / SYSTEM THINKING / SOLVING PROBLEMS
- 3** SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS (STEM)
- 4** LEARNING AGILITY / INFORMATION LITERACY / INTELLECTUAL AUTONOMY AND SELF-MANAGEMENT
- 5** LANGUAGE, LITERACY AND NUMERACY (LLN)
- 6** MANAGERIAL / LEADERSHIP
- 7** COMMUNICATION / VIRTUAL COLLABORATION / SOCIAL INTELLIGENCE
- 8** ENVIRONMENTAL AND SUSTAINABILITY
- 9** FINANCIAL
- 10** DATA ANALYSIS
- 11** CUSTOMER SERVICE / MARKETING
- 12** ENTREPRENEURIAL

WORKFORCE SUPPLY SIDE CHALLENGES AND OPPORTUNITIES

FUNDING AND APPRENTICESHIPS

Variations in jurisdictional funding and traineeship arrangements are reported as impacting the viability of training delivery. This is especially true for small markets and in specialist technical areas. This may lead to capacity constraints for both employers and Registered Training Organisations (RTOs) in the long term. These conditions present challenges for RTOs when considering future investment in training infrastructure and equipment, particularly those who are involved in new technology. The average workforce age profile has also risen slightly in the past ten years.⁴⁶ There is concern that reduced apprentice recruitment, coupled with the loss of industry knowledge and skills due to an ageing workforce, will result in fewer RTOs providing contemporary and industry-valued training.

TECHNOLOGY AND RENEWABLES

There are several trends that are shaping the workplace and job design of the ESI Generation industry. In response to Government policies, the industry is transitioning away from carbon intensive power generation, leading to a significant rise in renewable energy generation. The sector is also operating in an increasingly automated operating environment, utilising new technologies, interconnected devices and big data for decision making and efficiency gains.

The new trends will see changes in the skills required by those working in the industry, with greater demand for skills in renewable energy systems, operating new systems and interfaces, a robust understanding of autonomous systems, and big data analytical skills. Workforce planning and development activities need to be undertaken by enterprises workforce to ensure relevancy of skills is maintained and to create and retain a viable and productive workforce.

SOFT SKILLS ARE INTEGRAL FOR THE FUTURE

Today's workplace has fundamentally changed over the past decade and will continue to be transformed due to the advent of new technologies. In addition to technical and digital skills, soft skills will be equally important. Non-technical skills such as teamwork, problem-solving, and creativity are integral to the successful adoption and implementation of disruptive technologies.⁴⁷ Creativity and problem-solving skills will help individuals to explore new technologies and deploy them effectively in the workplace. The World Economic Forum has also indicated that these skills, as well as critical thinking, leadership, and emotional intelligence will be in demand in the next four years.⁴⁸ Industry experts and participants at the AIS Industry Skills Forums also emphasized the significance of soft skills as well as lifelong learning to have a workforce prepared for the future. Having an agile and resilient workforce, which is ready to adapt to changes, is essential.

26

STAKEHOLDER CONSULTATION

An extensive consultation process has been undertaken in the development of the Skills Forecast and Proposed Schedule of Work.

Among many issues and sensitivities raised throughout the consultation process, the top three key themes that emerged were:

Regulatory Compliance

The different state regulator requirements are becoming a barrier to learners, training and industry; workers cannot freely move across the country or into other roles in the energy sector. This is impacting workers' flexibility and industry's ability to alleviate skills shortages.

Auditing Systems

Industry needs to develop Training Package products for Auditing systems, processes and procedures, aimed at workplace supervisors.

Attracting Apprentices/Females

There was significant discussion about apprentices not having the required STEM/Foundation skills to complete a trade. The need to attract candidates with these skills as well as more females to the sector was identified.

Stakeholders involved in the consultation process;

7

IRC Members (see listed earlier in the Skills Forecast)

342

IS UEP12 Electricity Supply Industry- Generation Sector Training Package subscriber

8

State Training Authorities

AIS Industry Skills Forums, ESI Generation Industry breakout sessions were attended by representatives/s from the following organisations;

- ▶ Active Tree Services
- ▶ AGL
- ▶ Aurecon Australia
- ▶ Dalton Training Services
- ▶ Darwin Solar
- ▶ Entura Clean Energy and Water Institute
- ▶ Industry Skills Advisory Council NT (ISACNT)
- ▶ Jemena
- ▶ Navitas Professional
- ▶ Skills Impact
- ▶ Territory Generation
- ▶ Zinfra

A low-angle photograph of two wind turbine technicians standing on a metal walkway or staircase of a wind turbine. The technician in the foreground is wearing a white hard hat and a bright yellow-green safety vest. The technician behind them is wearing a blue hard hat and an orange safety vest. They are looking up towards the sky. In the background, the large white blades of another wind turbine are visible against a clear blue sky. A large, curved metal structure of the tower is on the right side of the frame.

THE ADOPTION OF AUTOMATED SYSTEMS, DATA COLLECTION, AND APPLICATION OF DATA ANALYTICS HAVE ENABLED BETTER ENERGY AVAILABILITY, REMOTE OPERATION AND MONITORING, PREDICTIVE MAINTENANCE, AND REDUCED OPERATIONAL COSTS.

2018 INDUSTRY SKILLS FORUMS



AIS facilitated a series of Industry Skills Forums across the country between September and November 2018. Respected journalist and author Kerry O'Brien moderated the events across all States and Territories that attracted over 1100 people, with an additional audience watching the Melbourne event that was live streamed online.

Attendees represented small, medium and large businesses (both employers and employees), education providers (from high school, the Vocational Education and Training sector and University), unions, State/Territory and Federal Department officials and peak bodies.

The Industry Skills Forums were set up as the central platform in AIS' intelligence gathering activity for 2018 allowing AIS to



identify industry skills needs, now and into the future.

The purpose of the forums was twofold:

To provide participants with the opportunity to directly shape the skills and workforce priorities across a broad range of Australia's industries; and

To provide AIS with the opportunity to capture data and intelligence for the 2019 Skills Forecasts.

Each forum consisted of two Panel discussions, facilitated by Kerry O'Brien. The panels were made up of Industry Leaders and focused on the current challenges facing our industries. Panel One discussed "Industry Leadership - new thinking about jobs and careers". This was followed by Panel Two discussing "Future Skilling our people in an age of digital transformation".

Following the panel sessions, attendees participated in industry-specific breakout sessions, facilitated by AIS Industry Managers. This provided participants with the opportunity to talk about the issues affecting their industry. The discussions kicked off with looking at the impact of new technologies and then focused on the barriers and opportunities to recruiting skilled employees and the emerging skill needs for each industry.



INDUSTRY LEADERS' DINNERS

Industry leaders across AIS' 11 industries met to discuss the high-level workforce and skills issues at a series of Industry Leaders' Dinners hosted by AIS on the evening preceding each 2018 Industry Skills Forum. Attendees from around the country included leaders from Industry, Government, the education sector, and relevant unions. AIS was delighted that the Minister for Jobs and Industrial Relations and Minister for Women, the Hon Kelly O'Dwyer was able to attend the Melbourne dinner.

The dinner meeting discussions were facilitated by Kerry O'Brien and the clear message from attendees was that they provided an excellent opportunity to bring together multiple industries to discuss common workforce development challenges and opportunities.



Many attendees from both the Industry Skills Forums and the Industry Leaders' Dinners commented on the opportunity that the events provided to engage with industry directly on workforce issues. Kerry O'Brien summarised the sentiment very well when wrapping up the final forum in Adelaide, noting that at every forum around the country, significant issues and ideas were raised about the pathway that we need to take as a nation. He noted that it is critical that these issues have been discussed at this level with the key players and the challenge for AIS now is twofold. The first is to formulate policy advice to take back to government. The second is to continue the conversation.



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PROPOSED SCHEDULE OF WORK

KEY DRIVERS

2019-20

CHANGING ROLE OF OPERATIONS PERSONNEL

The Electricity Generation industry is transitioning from a model of mostly coal fired steam turbine generation to a mix of thermal (coal), gas (natural, liquefied petroleum and hydrogen), renewable (solar), and large-scale wind generation and power storage.

The closure of Hazelwood Power Station and the planned closure of the Liddell Power Station further reduces the steam powered generation fleet in Australia. Steam based plant closures are likely to continue through the 2020's, even as coal fired generation will likely continue in Australia beyond 2030. Recent closures have meant a decline in the amount of new plant operators trained, as a number of industry players have sought out experienced operators for recruitment rather than undertaking workforce skills development programs through VET pathways.

POWER GENERATION TECHNOLOGY DEVELOPMENT

A significant amount of new power generation development is currently underway, comprised mainly of wind, solar, and gas generation plants. New power generation plants will require different operations, management and maintenance skills than required by the current generation workforce, with new generation plants anticipated to come online in the immediate future. As a result, demand is growing for more flexible skills to suit new power generation plant types and changed role requirements within the generation industry with the transition away from coal power generation. There is a need to focus on field operations skills, whilst building flexibility into existing steam generation operational skills.

A lack of national focus towards providing the right skills for the growing number of field operations roles required by Australia's power generation sector currently drives a higher prevalence of discrete site and technology specific training being delivered by original equipment manufacturers (OEM), and therefore reduces broad skills transferability across the electricity supply generation industry.

REMOTE AREA ESSENTIAL SERVICE

Increased efforts will be required to support Australia's Indigenous communities and provide enhanced employment opportunities for Aboriginal and/or Torres Strait Islander people to generate income, develop professional skills and participate in the national economy. Changes in power generation technologies provides opportunities for remote area communities to increase support to ongoing power generation maintenance and repair, emergency technical response (generation plant breakdowns), and the ongoing monitoring and reporting of remote power generation installations. The IRC have proposed that existing industry qualifications that support these roles are to be reviewed and developed to enhance vocational opportunities for remote area communities and provide additional workforce capacity for Australia's changing electrical power generation requirements.

2020-23

ESI GENERATION INDUSTRY SKILLS

The IRC have not identified Training Package materials for review or development during this forecast period. Where imported elective Units of Competency are identified as either deleted or superseded, the ESI Generation IRC may elect to revise the affected qualification(s) through the IRC Minor Change process.

PROPOSED RESPONSES

2019-20

OPERATIONS PERSONNEL

The IRC have proposed a project to respond to changed operational skill requirements through review and development of existing vocational qualifications. The project outcomes are designed to provide improved and industry flexible operational qualifications to address current and new power generation plant types and changed industry skill requirements.

WIND POWER GENERATION

The IRC have proposed a project to review and develop an existing power generation qualification related to renewable power generation. The UEP40618 Certificate IV in Large Scale Wind Generation – Electrical was released onto the National Register in October 2018 after being transitioned to the Standards for Training Packages 2012 during 2017-18. This qualification enables graduates to operate, test, find and diagnose faults and alter and repair electrical equipment and systems associated with large scale wind power generation. The IRC considers that the very limited use of this industry qualification over the last four years indicates that it is not currently fit for industry use and now requires significant review and development to ensure that it provides the necessary skills and knowledge for future wind power generation sector needs.

REMOTE AREA ESSENTIAL SERVICE

The IRC have proposed a project to review and develop the UEP20218 Certificate II in Remote Area Essential Service qualification. Project outcomes will ensure that qualification packaging rules include new power generation technology skills and provide clear vocational pathways to enhance employment opportunities for remote area communities and support the generation of additional workforce capacity for Australia's Electricity Supply Industry – Generation Sector.

2020-23

ESI GENERATION

The IRC have not identified Training Package materials for review or development during this forecast period. Where imported elective Units of Competency are identified as either deleted or superseded, the ESI Generation IRC may elect to revise the affected qualification(s) through the IRC Minor Change process.

PROPOSED SCHEDULE OF WORK

2019-20

Operations Personnel – Review and development

The Electricity Supply Industry - Generation Sector is transitioning from a model of mostly coal fired steam turbine generation to a mix of thermal (coal), gas (natural, liquefied petroleum and hydrogen), renewable (solar), and large-scale wind power generation and storage.

The ESI-GEN IRC have proposed a project to respond to changed operational skill requirements through review and development of seven vocational qualifications and 148 associated Units of Competency. The project outcomes are designed to provide improved and flexible operational qualifications to address current and new power generation plant types and changed industry skill requirements.

Wind Power Generation – Review and development

A significant amount of new power generation development is currently underway, comprised mainly of wind, solar, and gas generation plants. New power generation plants will require different operational, management and system maintenance skills than the current workforce, with new generation plants anticipated to come online in the immediate future. A lack of national focus towards providing the necessary skills for the growing number of field operations roles required by Australia's power generation sector currently drives a higher prevalence of discrete site and technology specific training being delivered by original equipment manufacturers (OEM), and therefore reduces broad skills transferability across the electricity supply generation industry.

The UEP40618 Certificate IV in Large Scale Wind Generation – Electrical was released onto the National Register in October 2018 after being transitioned to the Standards for Training Packages 2012 during 2017-18. The IRC considers that the very limited use of this industry qualification over the last four years indicates that it is not currently fit for purpose for industry use and now requires significant review and development.

The ESI-GEN IRC have proposed a project to review and develop the qualification and associated Units of Competency to ensure that it provides the necessary industry skills and knowledge for future wind power generation sector needs.

Remote Area Essential Service – Review and development

Increased efforts are required to support Australia's Indigenous communities and provide enhanced employment opportunities for Aboriginal and/or Torres Strait Islander people to generate income, develop professional skills and participate in the national economy. Changes in power generation technologies provides opportunities for remote area communities to increase support to ongoing power generation maintenance and repair, emergency technical response (generation plant breakdowns), and the ongoing monitoring and reporting of remote power generation installations.

The ESI-GEN IRC have proposed a project to review and develop the UEP20218 Certificate II in Remote Area Essential Service qualification. Project outcomes will include ensuring new power generation technology skills are included, with creation of flexible vocational pathways to increase employment opportunities for remote area communities, and additional workforce capacity for Australia's power generation sector.

2020-23

ESI Generation

The IRC have not identified Training Package materials for review or development during this forecast period. Where imported elective Units of Competency are identified as either deleted or superseded, the ESI Generation IRC may elect to revise the affected qualification(s) through the IRC Minor Change process.

2019-20 PROJECT DETAILS

OPERATIONS PERSONNEL

Description

The proposed project will review and develop seven qualifications and 148 associated Units of Competency to ensure that the skills and knowledge requirements to support the operations, management and systems support of the electrical power generation sector within Australia. The project will also update superseded or deleted imported Units of Competency within these qualifications to ensure these skills are contemporary with wider industry practice.

Rationale

The electricity generation industry within Australia delivers a significant amount of enterprise plant operations training. In large thermal power stations, Plant Operators are required to be trade qualified for role entry (mechanical or electrical fitter skills) and are required to complete up to two years additional training, with significant additional time providing On-Job-Training (OJT) through onsite training and assessment to be fully authorised as a power generation Unit Controller.

Existing VET qualifications are considered to be not relevant to individuals within the sector, or industry employers other than for enterprise skill benchmarking purposes. The Electricity Supply Industry – Generation Sector has seen very low numbers of plant operators moving between power generation stations, resulting in a lack of desire for formal VET qualifications amongst power station operators. Electrical power supply enterprises including AGL, Origin Energy, and TransAlta Energy Australia use existing UEP Units of Competency mainly as enterprise benchmarks to align internal workforce training and assessment strategies with nationally accredited qualifications to generate and develop workforce capabilities. Industry employers are baulking at the considerable costs and effort required to deliver industry qualifications that are not relevant to their enterprise, and consequently are resorting to site specific training, with technical and operational standards benchmarked against the existing nationally accredited Units of Competency.

Recent changes in the industry, including the move to renewable energy power generation, the increased automation of power generation control systems, and closure of several large thermal power generation plants, has led to greater workforce mobility within the industry, and subsequent greater awareness of the value of VET qualifications within the employment marketplace, and increased demand for employees with accredited qualifications.

The ESI-GEN IRC considers this an opportune time to review and develop existing industry qualifications to enhance industry skills transferability and create foster greater awareness of the vocational and professionalisation pathways available to the Electricity Supply Industry – Generation Sector.

36

Ministers' Priorities Addressed

- The project does not propose removal of obsolete and superfluous qualifications from the National Register
- The project will ensure that information is made available about Electricity Supply Industry – Generation Sector training delivery to training providers through Training Package Companion Volumes
- The project will support individuals moving acquired skills and knowledge from one state or territory to another
- The project may develop Units of Competency that may be owned and used by multiple energy sectors
- The project may propose the development of additional Skill Sets for the Electricity Supply Industry – Generation Sector
- The project does not propose the incorporation of existing accredited course materials into the UEP Electricity Supply Industry – Generation Sector Training Package

Consultation Plan

AIS will:

- undertake consultation on the IRCs behalf with all State Training Authorities and other key national stakeholders
- seek public feedback and input into development of material through the project's duration
- communicate to enterprises, State/Territory Training authorities, State/Territory Industry Training Advisory Bodies, Peak Bodies, Registered Training Authorities (RTOs) and other interested parties, of the establishment of the project
- conduct initial consultation with stakeholders to identify and invite key representatives to establish the Technical Advisory Committee (TAC) and posting information about the project on the AIS website and newsletter
- conduct face to face consultation and engagement sessions as required
- conduct TAC meetings to explain the process and gather comments/feedback
- communicate the process of drafting, identified Training Package materials (Qualifications/ Units of Competency/Skill Sets), verify and validate this material with stakeholders through email, the AIS website and the AIS newsletter for wider stakeholder involvement, throughout the review process
- continue communication on the project via the AIS website and newsletter.

Scope of Project

The project is planned to be undertaken between July 2019 and July 2020, with a Case for Endorsement planned for submission in August 2020.

Training Package

- UEP ESI Generation Sector Training Package

Qualifications

- Certificate II in ESI Generation - Operations Support
- Certificate III in ESI Generation - Systems Operations
- Certificate III in ESI Generation - Operations
- Certificate IV in ESI Generation - Systems Operations
- Certificate IV in ESI Generation - Operations
- Diploma of ESI Generation - Systems Operations
- Diploma of ESI Generation - Operations

Units of Competency

- 148 Units of Competency

Skills sets

- Existing or new Skill Sets may be reviewed and developed

WIND POWER GENERATION

Description

The ESI-GEN IRC have proposed a project to review and develop the UEP40618 Certificate IV in Large Scale Wind Generation – Electrical qualification and associated Units of Competency to ensure that it provides the necessary industry skills and knowledge for future wind power generation sector needs.

Rationale

New power generation plants will require different operations, management and maintenance skills than required by the current generation workforce, with new generation plants anticipated to come online in the immediate future. As a result, demand is growing for more flexible skills to suit new power generation plant types and changed role requirements within the generation industry with the transition away from coal power generation. There is a need to focus on field operations skills, whilst building flexibility into existing steam generation operational skills.

A lack of national focus towards providing the right skills for the growing number of field operations roles required by Australia's power generation sector currently drives a higher prevalence of discrete site and technology specific training being delivered by original equipment manufacturers (OEM), and therefore reduces broad skills transferability across the electricity supply generation industry.

This qualification was released onto the National Register in October 2018 after being transitioned to the Standards for Training Packages 2012 during 2017-18. The IRC considers that the very limited use of this industry qualification over the last four years indicates that it is not currently fit for purpose for industry use and now requires significant review and development.

38

Ministers' Priorities Addressed

- The project does not propose removal of obsolete and superfluous qualifications from the National Register
- The project will ensure that information is made available about Electricity Supply Industry – Generation Sector training delivery to training providers through Training Package Companion Volumes
- The project will support individuals moving acquired skills and knowledge from one state or territory to another
- The project may develop Units of Competency that may be owned and used by multiple energy sectors
- The project may propose the development of additional Skill Sets for the Electricity Supply Industry – Generation Sector
- The project does not propose the incorporation of existing accredited course materials into the UEP Electricity Supply Industry – Generation Sector Training Package

Consultation Plan

AIS will:

- undertake consultation on the IRCs behalf with all State Training Authorities and other key national stakeholders
- seek public feedback and input into development of material through the project's duration
- communicate to enterprises, State/Territory Training authorities, State/Territory Industry Training Advisory Bodies, Peak Bodies, Registered Training Authorities (RTOs) and other interested parties, of the establishment of the project
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- conduct the TAC meetings to explain the process and gather comments/feedback
- communicate the process of drafting, identified Training Package materials (Qualifications/ Units of Competency/Skill Sets), verify and validate this material with stakeholders through email, the AIS website and the AIS newsletter for wider stakeholder involvement, throughout the review process
- continue communication on the project via the AIS website and newsletter.

Scope of Project

The project is planned to be undertaken between July 2019 and July 2020, with a Case for Endorsement planned for submission in August 2020.

Training Package

- UEP ESI Generation Sector Training Package

Qualifications

- UEP40618 - Certificate IV in Large Scale Wind Generation - Electrical

Units of Competency

- 13 Units of Competency

Skills sets

- Nil

REMOTE AREA ESSENTIAL SERVICE

Description

The IRC have proposed a project to review and develop the UEP20218 Certificate II in Remote Area Essential Service qualification. Project outcomes will ensure that qualification packaging rules include new power generation technology skills and provide clear vocational pathways to enhance employment opportunities for remote area communities and support the generation of additional workforce capacity for Australia's Electricity Supply Industry – Generation Sector.

Rationale

Increased efforts will be required to support Australia's Indigenous communities and provide enhanced employment opportunities for Aboriginal and/or Torres Strait Islander people to generate income, develop professional skills and participate in the national economy. Changes in power generation technologies provides opportunities for remote area communities to increase support to ongoing power generation maintenance and repair, emergency technical response (generation plant breakdowns), and the ongoing monitoring and reporting of remote power generation installations. The IRC have proposed that existing industry qualifications that support these roles are to be reviewed and developed to enhance vocational opportunities for remote area communities and provide additional workforce capacity for Australia's changing electrical power generation requirements.

Ministers' Priorities Addressed

- The project does not propose removal of obsolete and superfluous qualifications from the National Register
- The project will ensure that information is made available about Gas Supply training delivery to training providers through Training Package Companion Volumes
- The project may support individuals moving from acquired skills and knowledge from one state or territory to another
- The project does not propose creation of Units of Competency that may be owned and used by multiple energy sectors
- The project does not propose the development of additional Skill Sets for the Electricity Supply Industry – Generation Sector

40

- The project does not propose the incorporation of existing accredited course materials into the UEP Electricity Supply Industry – Generation Sector Training Package

Consultation Plan

AIS will:

- undertake consultation on the IRCs behalf with all State Training Authorities and other key national stakeholders
- seek public feedback and input into development of material through the project's duration
- communicate to enterprises, State/Territory Training authorities, State/Territory Industry Training Advisory Bodies, Peak Bodies, Registered Training Authorities (RTOs) and other interested parties, of the establishment of the project
- conduct initial consultation with stakeholders to identify and invite key representatives to establish the Technical Advisory Committee (TAC) and posting information about the project on the AIS website and newsletter
- conduct face to face consultation and engagement sessions as required
- conduct the TAC meetings to explain the process and gather comments/feedback
- communicate the process of drafting, identified Training Package materials (Qualifications/ Units of Competency/Skill Sets), verify and validate this material with stakeholders through email, the AIS website and the AIS newsletter for wider stakeholder involvement, throughout the review process
- continue communication on the project via the AIS website and newsletter.

Scope of Project

The project is planned to be undertaken between July 2019 and July 2020, with a Case for Endorsement planned for submission in August 2020.

Training Package

- UEP Electricity Supply Industry – Generation Sector Training Package

Qualifications

- UEP20218 - Certificate II in Remote Area Essential Service

Units of Competency

- Nil

Skills sets

- Nil



AUSTRALIAN INDUSTRY STANDARDS

Australian Industry Standards (AIS) provides high-quality, professional secretariat services to the Rail IRC in our role as a Skills Service Organisation. AIS provide services to eleven allocated IRCs which cover Aviation, Corrections, Gas, Electricity Supply (Generation and Transmission, Distribution and Rail), Electrotechnology, Maritime, Public Safety (including Police, Fire and Emergency Services, Defence), Rail, Transport and Logistics, and Water industries. AIS supports these important industry sectors using our in-house capability and capacity in technical writing, quality assurance, project management and industry engagement in the production of Training Packages.

AIS was established in early 2016, 20 years after its predecessor the Transport and Logistics Industry Skills Council (TLISC) was established in 1996. More information about AIS can be found at <http://www.australianindustrystandards.org.au>.

- We support industry growth and productivity through our modern innovative approach to establishing skills standards.
- We provide high-quality, professional secretariat services to help our allocated industry reference committees develop the skills that industry needs.
- We partner with industry to shape the workforce of the future.

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twitter.com/AusIndStds



www.linkedin.com/company/australian-industry-standards/

www.australianindustrystandards.org.au

enquiries@australianindustrystandards.org.au



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