



Final Progress Report
Skills Shortages in Electrotechnology

Produced by the Electrotechnology Task Force

July 2002



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1 Foreword

I have considerable pleasure in presenting this Final Progress Report on Skill Shortages in Electrotechnology to the Hon Dr Brendan Nelson MP, Minister for Education, Science and Training.

The Electrotechnology industry is one constantly at the forefront of technological change and innovation. Advancements in the applications of "smart technologies", home and industrial automation, global increase in demand for high quality voice and data communications, broadband Internet and the integration of communications and information technology are just some of the areas in which technological advancements are impacting on enterprises in the industry.

Throughout the two years of the National Industry Skills Initiative, much valuable work has been done and many strategies put in place, to address the shortages identified in the initial research undertaken through the Initiative in 1999.

The work done to date must however, be seen as the start of a journey, rather than as a project that has now been completed. The resources and energy invested by the industry and government have set the framework for profound change necessary to supply the ever-increasing skills required by industry.

We recognise that change in the industry will continue at a rapid pace. Skill shortages that existed at the start of the Initiative are being addressed. Concurrently, demands from industry for skill sets that did not exist at that time, are creating new skill shortages or gaps. This cycle is continuous and will accelerate with the constant introduction of new technologies.

The major gains made through the National Industry Skills Initiative include:

- Greater **engagement** of the industry
- Increased **communication** between stakeholders
- More focussed **research** and
- Better awareness of **resources** available to address the issues, and better allocation of these resources.

Together these have contributed to an industry that is now in a far better position to analyse the ongoing needs for recruitment, training and skill development and to develop and implement strategies to address these needs.

I commend this report as a record of activities to date, as well as a valuable planning document for the Electrotechnology industry.

Simon Gerard
Chair Electrotechnology Taskforce

2 Overview

2.1 Introduction

This report of the Electrotechnology Task Force documents the progress of the National Industry Skills Initiative in Electrotechnology. The results show a significant contribution has been made in addressing the issue of skill shortages in Electrotechnology in the two years since the Electrotechnology Industry Action Plan was agreed with the Commonwealth Government on 27th July 2000.

Many of the strategies documented in the original action plan have been fully or partly implemented over the two years. Additionally, increased recognition in the industry of the need for workforce planning has impacted on other issues in the fields of recruitment and training.

2.2 Achievements

The Electrotechnology Action Plan has been in effect for two years. This timeframe, when measured against the majority of training pathways in Electrotechnology is short. Despite this there have been many achievements both tangible and intangible in approaches to recruitment and training for the industry. Of the two, the intangible gains are profound and set the groundwork for ongoing benefits from the Initiative:

Engagement

- There is now greater engagement of industry stakeholders in considering recruitment and training for the future.
- This has been accompanied by an increased recognition of the need to look for new ways of responding to the challenges brought by ongoing technological change.
- Commitment of industry resources to the various projects undertaken through the Initiative, serve as evidence of increased engagement of the industry.

Communication

- Industry's involvement in the National Industry Skills Initiative has facilitated improved communication between stakeholders in recruitment and training for Electrotechnology.
- There has been increased communication between industry and educational bodies, and industry and government, which has led to improved understanding between the groups.
- Communication within the industry in bringing about a cooperative approach to addressing issues relating to recruitment and training.
- Communication with like bodies internationally - Britain, Europe, America, has increased industry awareness of common issues in relation to recruitment and training. This has brought in a new dimension in devising strategies to address these issues.

Research

- Through research there is now a substantive body of knowledge on which to base decisions.
- Instead of guessing the needs of the industry through anecdotal information, decisions are being made on the basis of valid data and statistics.
- The recognition of the value of this data has led to an industry rethink on what statistics are of value to the industry, and through communication with relevant government bodies has led to changes in the data supplied to the industry.

Resources

- Industry has been able to identify where resources can best be utilised. This has been brought about through cooperation between industry and government, and a better understanding of the issues to be addressed provided by research.
- As a result of this resources have been targeted in a more meaningful and useful way.

2.3 Overview of the Electrotechnology Industry

The work of the Electrotechnology industry impacts on almost every aspect of daily life in Australia. Electrotechnology covers all aspects of 'electrical, electronic and communications' technology. The technology ranges from traditional light and power to electronic, networking and communications infrastructure that support the voice and data telecommunications that is increasingly becoming part of daily life in business and personal lives.

The annual turnover of the Electrotechnology industry in Australia is \$50 billion, with the contracting sector accounting for \$6.1 billion.

Total employment in the Electrotechnology trades workforce is approaching 220,000 people. This amounts to some 2.4% of all employment in Australia. These trades represent the third largest area of employment in Australia's trades' workforce (behind the building & construction and metal trades), accounting for some 16% of total trades employment in Australia.

The major occupations in the electrical trades are electrician, communications tradesperson, electronic & office equipment tradespersons, and refrigeration and air-conditioning mechanics. The current rate of technological change in the industry is very high and expected to increase. The use of 'smart' technology such as home automation and the integration of systems, including data has become common in many sectors of the industry.

As the Electrotechnology industry develops and changes, more sophisticated technical skills and problem solving abilities are in demand. The primary mode of entry into the industry is via a traditional apprenticeship. Apprentices are expected to be highly competent in the skills required and to be prepared to continue updating skills throughout their working life.

2.4 Next Steps – The Way Forward

Many of the proposed actions for the future are documented in Attachment 3: Electrotechnology Industry Action Plan Implementation. The way forward for the industry is dependent on continuation of the work started through the National Industry Skills Initiative.

As commented in the achievements (Section 2.2), many of the outcomes of the National Industry Skills Initiative are intangible and represent attitudinal change within the industry. We now have recognition of the need for the industry to be in a position to respond to technology in a timely manner. Future actions planned by the Electrotechnology industry include:

Continuation of work undertaken through the National Industry Careers Project¹.

The careers project is seen by the industry as a beginning. We now have high quality information on careers in the Electrotechnology industry available to students in secondary schools via the Electrotechnology Information Pack and Electrotecfutures website. Ongoing work includes:

- Continuation of travelling workshops and the Electrotechnology camp initiated through the project.
- The Electrotechnology Secondary Student Award initially established with government support and now continuing with industry sponsorship.

Encouragement of communication between employers and schools at a community level.

- Devise and implement strategies that enable employers and schools to communicate at a local level.

Marketing and promotion to employers to encourage them to take on apprentices.

- Implement an industry marketing campaign to encourage employers to consider taking on an apprentice.
- Provide information on the New Apprenticeship system to employers as part of this campaign.

Research to establish the current status of the industry.

Through the work in the National Industry Skills Initiative² there is recognition that effective planning for the future relies in part on knowledge of the current situation.

- Conduct research to establish a current 'snapshot' of the Electrotechnology industry³.
- Use the results to develop and inform future planning activities including an industry communications forum to be held in the latter part of 2002.

Innovative Pathways project.

Through the Group Training Innovative Pathways project, training pathways are being identified that will provide workers with the skills required for a continually changing industry.

- Implementation of alternative pathways under the Group Training Innovative Pathways project.

Collation of research results to date.

There is now a body of research available on the Electrotechnology industry. This research and the statistics made available through NISI projects will be used to:

- Inform industry stakeholders on findings to date.
- Plan future strategies to address skill shortages and skill gaps.

¹ The Careers Project was run through the DEST Career Information Industry Partnership Programme, and operated from July 2000 to July 2001.

² In particular research through Innovative Pathways project.

³ The acceleration in uptake of new technologies, particularly in automation and voice & data communications has created change in the Electrotechnology industry. Research would supply information on the extent to which the industry is becoming integrated with Communications, Telecommunications and Information Technology.

3 Electrotechnology Industry Objectives

The Industry Action Plan established in July 2000 had 5 main objectives:

Objective 1	Establish the Electrotechnology Taskforce
Objective 2	Increased Marketing and Promotion
Objective 3	More Flexible and Alternative Pathways
Objective 4	Evaluation of Regulatory, Legislative or Systemic Barriers to New Apprenticeships
Objective 5	A Streamlined Response to Demand for New Skill Sets

Each of these has been documented, with the achievements shown under each section, (3.1 to 3.5).

Much progress has been made to date:

- The Electrotechnology Taskforce is well established and prepared to continue work towards achieving all the objectives.
- Marketing and Promotion of career opportunities in Electrotechnology to schools and their students has been extensive, and a program is currently underway to now to develop this for employers in the Electrotechnology industry. This program will be aimed at encouraging employers to consider taking on an apprentice.
- The ongoing Group Training Innovative Pathways project will progress the third objective. Barriers to New Apprenticeships have been identified, and it is anticipated that the project will test some of these barriers. System wide, there are also working groups and projects that are examining impediments to flexible training, and working to address these.
- Barriers to flexible training have been addressed through work towards a single national licensing regime and extensive work on the Electrotechnology Training Package throughout 2001.
- The Group Training Innovative Pathways project will help to address the demand for skill sets, which have been researched. Pathways are currently being devised to address these demands.

3.1 Establish the Electrotechnology Taskforce

3.1.1 Achievements

The Taskforce, consisting of representatives of both industry and government was established and first met in September 2000. Since then the Taskforce has met regularly to discuss progress, and guide future actions.

The Taskforce has been a valuable resource for implementation of the Action Plan not only as a group, but also as expert individuals who have been called on to advise on the various activities undertaken through the National Industry Skills Initiative. Industry representatives have contributed resources and time to:

- Informing and leading the industry and government in recognition of the issues. and
- Implementing strategies to address those issues.

The work of the Taskforce has been communicated regularly to the industry through NECA newsletters and industry publications.

3.1.2 Next Steps

While much valuable work has been completed during the two years of the Action Plan implementation, many of the activities have led down paths not foreseen at the beginning⁴. While adding to the value to the project this has meant that extra activities that were not in the original Action Plan have been undertaken, and more time required for fulfilment of planned activities.

In order to build on the activities to date, and complete the implementation of strategies in the Action Plan, NECA will propose a further two-year partnership with the Government for the purpose of:

- Consolidating on the work to date by implementing activities developed in the two years of Action Plan implementation.
- Further monitoring and evaluating the outcomes of strategies that have been implemented.
- Continued communication with secondary schools to ensure that the products of the careers project are being utilised.
- Continued communication with the broader industry of the aims and achievements of the National Industry Skills Initiative.

⁴ *Active involvement in the review of the National Electrotechnology Training package in order to effect changes that would enable more flexible training pathways in future; Need established for industry survey to establish 'snapshot' of current industry; Intangible achievements (Section 2.2). None of these were listed as objectives in the Action Plan, yet have been invaluable outcomes in establishing a climate conducive to self examination and change.*

3.2 Increased Marketing and Promotion

- Objective 2.1 Develop a promotional and marketing campaign aimed at increasing the number of people seeking to commence entry-level training in the Electrotechnology trades.
- Objective 2.2 Develop a promotional campaign aimed at employers of Electrotechnology tradespersons to increase the number of New Apprenticeship opportunities.

3.2.1 Overview

This objective had **two main facets**:

- Promotion of career opportunities in the Electrotechnology industry, aimed at secondary schools to increase the number of young people considering a career pathway in the industry, and
- Promotion aimed at employers in Electrotechnology industry to encourage them to take on apprentices.

Careers promotion aimed at increasing the number of people seeking to commence training in Electrotechnology was carried out through the Careers Project. Promotion aimed at employers is currently under development, to be implemented in the latter half of 2002.

3.2.2 Achievements

Promotion to Schools - Careers Project

Under the National Industry Skills Initiative a national Careers Project funded through the DEST Career Information Industry Partnership Programme ran from July 2000 to June 2001. Research⁵ showed that secondary schools and their students had no information on the Electrotechnology industry, or the career paths available. Work in the industry was generally seen as a traditional 'dirty' trade with few career prospects. The aim of the project was to develop resources that would engage secondary school students, and inform students and their teachers of the career pathways available in the Electrotechnology industry.

The careers project had three major foci:

- Awareness raising of teachers and students about the Electrotechnology industry.
- Development and distribution of materials to provide high quality information on training pathways available in the industry.
- Provision of interactive "hands on" experiences for secondary school students.

Two main products of the awareness raising phase of the project were:

- *Business card size CD ROMs to all secondary schools and Register Training Organizations (RTOs).*
This CD contained a multimedia presentation with basic information on the industry and the career paths available. It was distributed to all secondary schools and RTOs across Australia, and is used extensively in promotion of careers in the industry.
- *Dynamic email to careers teachers.*
This was a small multimedia presentation that was attached to an email sent to all careers teachers in Australia. The presentation, distributed after the launch of the Electrotecfutures website, directed careers teachers to the website.

⁵ Research was carried out in the initial stages of the Careers Project, 2000.

High quality information on career opportunities in the industry was provided through:

- *New careers website – www.electrotecfutures.com.au*
This careers website was established in November 2000 and was designed to appeal to young people. The website has extensive information on the Electrotechnology industry along with contact information. Additional sections including VET in Schools and industry profiles are being developed for the site.
- *Print Products*
A high quality Information Pack containing extensive information on careers in the industry was produced and distributed to all schools and training bodies in Australia. The Information Pack presentation and content were designed to present the industry as an exciting high technology industry with a wide range of career options. The folder was extremely well received with many teachers sending feedback that praised the quality of the presentation and content, for example:

“An excellent presentation, which is durable and highly informative with comprehensive details pertaining to subjects - jobs - remuneration and also alternate pathways.”⁶

Provision of “hands-on” experience

An important way in which students learn is through “hands-on” experiences. It is difficult to provide such experiences in the Electrotechnology industry due to the nature of the industry. Much of the work of the industry is unseen, the finished product usually residing “behind the walls”. Access to worksites is problematic due in part to Occupational Health and Safety issues. Through the careers project, methods by which students could be provided with “hands-on” interactive experiences were trialled.

- *Interactive workshops*
Workshops were constructed and taken out to schools so students were able to have “hands-on” experience. Students were able to use and experiment with a programmable “C Bus” unit that would be used in a home, factory or commercial building to control all electrical functions within the building. Interactive workshops were set up in Western Australia and Queensland and toured schools in both states in the latter half of 2001. Ten schools were visited in each state in 2001. The workshops will be used again in 2002, in those two states.
- *Two day Electrotechnology Camp*
A two-day non-residential camp was run in Victoria in June 2001. Secondary school students attended the camp where they experienced two days of practical “hands-on” activities related to careers in Electrotechnology. The success of this camp led to a further camp being run in Darwin in June 2002. Educational bodies in Darwin supported the camp and costs were being covered by industry sponsorship. Students undertook similar activities to those in the Melbourne camp with the addition of a visit to the World skills championships in Darwin to see top apprentices working at their trade.
- *Electrotechnology Secondary Student Award*
A nationwide award for secondary students was implemented in 2001 as part of the project. This award was highly successful in:
 - Stimulating interest in Electrotechnology among secondary students
 - Raising the profile of Electrotechnology in schoolsThe award was presented at the annual industry apprentice awards and generated a high level of interest amongst industry representatives there. The award continues in 2002 with industry sponsorship.

⁶ Teacher feedback on the Information Pack 2001

One further outcome from the Careers project that was envisaged was an increase in communication between industry and education. This has succeeded beyond expectation. The workshops, camp and secondary student award have all contributed to communication between educational bodies and industry⁷, as well as a recognition in industry that action can be taken that is successful in communicating the industry to schools and their students.

Promotion to Employers

Promotion to employers is currently being developed. Research undertaken in 2001⁸ documented factors that influenced employers in their decisions to take on an apprentice. The results of this research are being used to develop a marketing strategy for employers.

3.2.3 Next Steps

Promotion to Schools - Careers Project

The careers project was officially completed in 2001. NECA in conjunction with the Electrotechnology industry is continuing to maintain and extend the achievements to date. Many of the activities are still continuing with industry support and sponsorship. Work to be done to extend on the achievements of the careers project includes:

- Further development of the careers website. This website is constantly under review and sections on New Apprenticeships and industry profiles are being developed.
- Promotion of the Electrotechnology Secondary Student Award which is guaranteed for the next five years with industry sponsorship.
- Encourage the continuation and uptake of interactive student experiences.
- Development of a project to encourage industry – education links at a local level.

Promotion to Employers

As outlined in the Electrotechnology Industry Action Plan, a marketing plan is in development, which aims to encourage employers to consider taking on a New Apprentice. The marketing plan, informed by the Employer Engagement research is currently in the final stages of development and will be implemented in the latter half of 2002. One facet of this plan is the establishment of a hotline for employers who have decided to take on an apprentice to provide support in working with the New Apprenticeship system. This is intended to be a first stop for employers in the Electrotechnology industry, who may then be referred onto their nearest New Apprenticeship Centre (NAC) or Group Training Company (GTC).

Another important part of this work will be to look further at strategies which could be implemented to ensure that employers are informed about changes to training systems, government initiatives and training package issues.

Utilisation of Research

⁷ Industry - Group training companies and NECA offices. Education – careers teachers and science teachers in secondary schools.

⁸ Employer Engagement with New Apprenticeships in the Electrotechnology Industry, NCVET, 2001

Through the National Industry Skills Initiative three major pieces of research have been completed:

- Careers project research
- Employer Engagement report
- Barriers Report – Innovative Pathways Project

A summary paper documenting the findings of all research will be produced to communicate the findings to the industry and interested parties, and also to determine appropriate next steps for action.

3.3 More Flexible and Alternative Pathways

- Objective 3.1 Identify, develop and pilot flexible and alternative training pathways as a means of increasing the commencement, retention and completion rates for those in training in Electrotechnology.
- Objective 3.2 Identify, develop and pilot appropriate pathways and promote streamlined training arrangements for mature-age New Apprentices entering or currently in training.

3.3.1 Overview

Much of the work for this objective is being completed through the Group Training Innovative Pathways Project that runs from April 2001 to April 2004 with support from DEST. There have been a number of outcomes from the project, now in its second year:

- Statistics Report on New Apprenticeships in Electrotechnology by Occupation (2001)
- Report on Critical Barriers to Innovative New Apprenticeship Pathways in the Electrotechnology Industry (2002)
- Report on Best Practice Models (2002)
- Innovative Pathways Paper (2002)

One unintended outcome of the research completed for this project was the identification of the need for further research to establish exactly what is meant by the Electrotechnology industry⁹.

3.3.2 Achievements

Implementation of the Group Training Innovative Pathways Project. As mentioned above, four papers, two of which are major research papers have been completed. These reports have provided valuable information for defining more flexible pathways for piloting through Group Training Companies.

There is a high level of accredited training¹⁰, outside the public training system, being undertaken in the communications sector. NECA has been working to expand opportunities for RPL¹¹ in this sector through recognition of the skills being developed through this training. This work is ongoing and will form part of the next steps in the project.

Through the Innovative Pathways project, some research has been undertaken to identify the barriers to mature age entry to training.

NECA's work in the review of the National Electrotechnology Training Package will help with the development of more flexible pathways, and the ability to articulate more easily between qualifications in the training package. (See section 3.4.2)

3.3.3 Next Steps

The next steps of this project are primarily to be undertaken through the Innovative Pathways project. They include:

- Implementation of the pathways currently under development through the project.
- Documentation of the barriers to mature age entry identified through research.
- Documentation of case studies of successful mature age entry identified through research.

⁹ Discussed in section 2.4.

¹⁰ This includes vendor training for installation and maintenance of specific products, as well as training to achieve high level skills beyond those obtained through trade level training.

¹¹ Recognition of Prior Learning.

3.4 Evaluation of Barriers to New Apprenticeships

Objective 4.1 Identify and implement a national industry initiative in response to identified, legislative, regulatory and systemic barriers to entry and retention in Electrotechnology trades training.

3.4.1 Overview

The objectives set out in the original Electrotechnology Action Plan required identification of barriers to New Apprenticeships, a national industry initiative to address those barriers and a system wide program to improve mentoring/support services for New Apprentices.

Much of the work to date has been in identifying and addressing barriers through Training Package and licensing issues.

3.4.2 Achievements

The National Electrotechnology Training Package review was started in 2001. Through participation in this review, NECA has been working to effect a training package structure that poses fewer barriers to entry and allows articulation between qualifications within the package. This process is ongoing at the time of writing, however much progress has been made in reaching agreements for restructure.

Electrical licensing has posed barriers to entry and training in the past. A state licensing system has meant seven different licensing regimes exist across Australia. NECA as a member of the National Uniform Electrical Licensing Advisory Committee (NUELAC) has participated in the process to establish a single national licensing regime throughout Australia. This process began implementation throughout Australia in July 2001, and although not yet completed, will conceivably contribute in the future to the breaking down of barriers to training.

ANTA has completed a report on industry licensing, License to Skill (2002). NECA participated in the research for this report, that identified the impact of industry licensing on training package implementation. Electrotechnology was used as a case study in this report, the findings and recommendations of which will inform future action on licensing and Training Package review.

A Task Force working group¹² was set up to examine legislative, regulatory and systemic barriers to entry and retention in Electrotechnology trades. Through the work of this group, many barriers were identified, however the means to address these barriers were not readily apparent. Some of the work to address these barriers can be completed through the Innovative Pathways project.

Research into mentoring/support for apprentices is being carried out through the Innovative Pathways project.

¹² Working Group 4: Regulatory, Legislative and Systemic Issues.

3.4.3 Next Steps

The Task Force's Working Group 4 was set up specifically to identify barriers to entry and articulation in training in Electrotechnology. While many of these barriers have been identified, current methodology does not seem to providing a pathway through which to address the identified issues in a timely manner. The strategy used to address the barriers needs to be redefined. It is anticipated that some identified barriers will be addressed through the Group Training Innovative Pathways project. Some others are currently being addressed (as previously mentioned) through the National Electrotechnology Training Package review and implementation of a single national licensing regime.

Through the Group Training Innovative Pathways project, good practice in mentoring/support of apprentices is being identified. It would be of value to document case studies to date, and then extend this research to identify whether these practices are leading to higher retention and increased satisfaction with the outcomes of training both from an employer and employee's perspective.

The skills to supervise apprentices are not well embedded in the training culture in Electrotechnology. A project aimed at improving the supervisory skills of people who are working directly with apprentices is required to address this issue.

3.5 A Streamlined Response to Demand for New Skill Sets

- Objective 5.1 Co-ordinate relevant industry research to ensure regular updates on changing needs for structured training in Electrotechnology and market demand in new technology areas.
- Objective 5.2 Investigate actual and emerging needs for communications and electronic and office equipment tradespersons and identify an appropriate response.

3.5.1 Overview

The two parts of this objective are very different. Both have been considered, and strategies to achieve the objectives are under development.

3.5.2 Achievements

Through research and consultation¹³ it has become apparent that the current extent of the industry is not known. There is a need for research on the current position of the industry, especially with regard to the communication sector. An industry wide response to this is discussed in 3.5.3 Next Steps.

The need for training pathways in the electronic and office equipment tradespersons area is currently being researched and documented through the Group Training Innovative Pathways project.

3.5.3 Next Steps

Desktop research to establish what data and statistics are currently available to the industry through relevant research bodies (NCVER, DEWR, DEST). Determination of data and statistics required for the industry to be in a position to recognise and respond to changing needs in the industry. Following this, a comparison between available and required data to identify gaps in knowledge¹⁴.

Once it is known what data is required and not currently available, a process will be developed to enable this information to be collected and analysed on a regular basis, to inform those people making decisions on the future training needs of the industry.

Implementation of training pathways to address identified needs in electronic and office equipment tradespersons. This is being addressed through the Group Training Innovative Pathways project.

¹³ In particular research for the Group Training Innovative Pathways project.

¹⁴ For example current data on electrical apprentices in training is showing that the number has decreased from 2000 to 2001. A closer look at the data reveals that apprentices in alternative dual pathway courses are not showing up as electrical apprentices, thus skewing the data.

4 Task Force and Working Groups

4.1 Task Force

Representatives from Industry and Government participating in the Task Force are:
Simon Gerard (Chair) – National Marketing Manager, Gerard Industries Pty Ltd
Peter Glynn – Chief Executive Officer, National Electrical & Communications Association (NECA)
David Madson – Stowe Australia Pty Ltd
Michael Graham – Automation and Control Electrics
Murray Baker – Anixter Australia
Neville Palmer – Gordyn and Palmer
Clinton Chin – Heyday Group
Brett Conran – The Somerville Group
Mary Johnston – Department of Education, Science and Training (DEST)
Steve Balzary – Australian Chamber of Commerce and Industry (ACCI)
Peter Hannigan – Australian National Training Authority (ANTA)
Jessie Borthwick – National Centre for Vocational Education Research (NCVER)

4.2 Working Group 1 *Careers*

This working group completed their work at the conclusion of the careers project in 2001. While work is ongoing the working group has not been reconvened.

4.3 Working Group 3 *Marketing and Promotion*

Murray Baker – Anixter Australia
Michael Graham – Automation and Control Electrics
Simon Gerard – Gerard Industries
Peter Glynn – NECA
Robin Norris – Hagemeyer Group
Wayne Sampson – MMEM
Graeme Fear – MMEM

4.4 WG 4 *Regulatory, Legislative and Systemic Issues*

Tony Palladino – Electrocomms & Energyutilities Qualifications Standards Board of Australia (EEQSBA)
Peter Hannigan – Australian National Training Authority (ANTA)
Peter Glynn – NECA
Albert Koenig – Office of Energy (Western Australia Electrical Regulator)
John Coburn – State Training Authority (Victoria)

4.5 Working Group 5 *Implementation*

Brian Seymour (Chair) – Victec Skills Centre
Tony Palladino – EEQSBA
Chris Robinson – NCVER (To be replaced)

4.6 Working Group 8 *New Skill Sets*

Still to meet

5 Glossary

ACCI	Australian Chamber of Commerce and Industry
ANTA	Australian National Training Authority
DEST	Department of Education, Science and Training (Formerly DETYA)
DEWR	Department of Employment and Workplace Relations
EEQSBA	Electrocomms and Energy Utilities Qualifications Standards Board of Australia (Formerly NUIETAB)
GTC	Group Training Company
NAC	New Apprenticeship Centre
NCVER	National Centre for Vocational and Educational Research
NECA	National Electrical & Communications Association
RTO	Registered Training Organisation

6 Attachments

Attachment 1: New Apprenticeship in Electrotechnology: Patterns and Trends

Attachment 2: Achievements of the Electrotechnology Industry under the National Industry Skills Initiative; January 2002 to June 2002

Attachment 3: Electrotechnology Industry Action Plan Implementation; July 2000 to June 2002

Final Progress Report

Skills Shortages in Electrotechnology

Attachment 1:

New Apprenticeship in Electrotechnology: Patterns and Trends

July 2002

New Apprenticeship in Electrotechnology

Patterns and Trends

This paper is an attachment to **the Progress Report of the Electrotechnology Task Force**. It provides a summary analysis of the trends in employment of apprentices and trainees in Electrotechnology from 1995 – 2001, and has been included to:

- provide insight into the number of New Apprentices being employed in the industry
- examine some factors that may be influencing these numbers.

New Apprentices¹ in Electrotechnology are employed into a number of occupations, the largest by far being Electricians (70% of total in 1995). Other categories include Refrigeration & Air Conditioning Mechanics, Electrical distribution tradespersons, Electronic instrument tradespersons, Electronic & office equipment tradesperson and Communications tradespersons².

Two measures contribute to the number of New Apprentice completions in Electrotechnology:

- Commencements of New Apprentices
- Retention of New Apprentices

These factors will be discussed in relation to total employment of New Apprentices in the Electrotechnology industry. There is also specific analysis of the Electrician category as it contributes such a high proportion of employment in the industry, and does not always follow the same pattern as the industry as a whole. Where it was considered appropriate, trends in other occupational categories have also been considered.

¹ Apprentices and trainees

² A complete list is shown in Section 3.4, Tables 1 & 2.

1. Influences on Employment of Apprentices

Before addressing specific data on New Apprenticeships in the industry, an overview of employment patterns in the industry has been undertaken. This was done as apprentice intake is affected by economic conditions in the industry.

“It is recognised that historically apprentice intake is directly affected by fluctuations in economic conditions, with the number of commencements falling during periods of economic downturn and rising during periods of economic growth.” DEST (Formerly DEETYA, 1997).³

This is supported by findings from the Employer Engagement Report⁴ (2001), which stated that the two principal influences impacting on apprentice employment in the Electrotechnology industry are:

- Firm size and
- Availability/continuity of work

1.1 Firm Size

“Most employers currently employing electrical apprentices are the larger (over 20 employees) and medium sized (6 to 19) firms.”⁵ While this information can be used for targeted marketing and promotion, it is not a factor easily addressed in determining strategies to address skill shortages.

1.2 Availability of Work

Economic conditions in the industry which subsequently determine availability of work have been assessed using two measures⁶:

- Total employment in the Electrotechnology industry
- Vacancies in the Electrotechnology industry

³ “Labour Market for Apprentices” (DEETYA 1997 Analytical series no. 98/1)

⁴ Employer Engagement with New Apprenticeships in the Electrotechnology Industry, NCVET, 2001

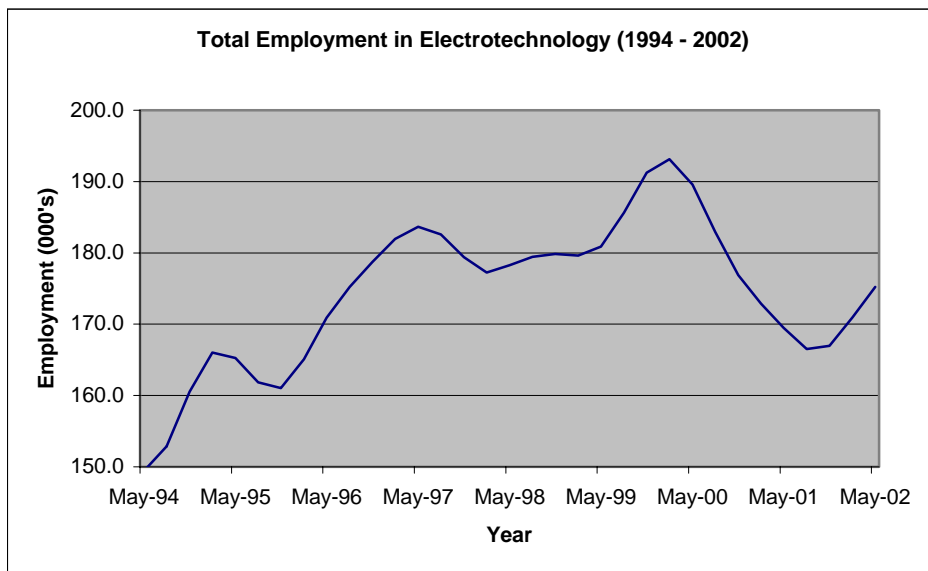
⁵ Employer Engagement with New Apprenticeships in the Electrotechnology Industry, NCVET, 2001

⁶ The two measures chosen give a picture of how employment has varied over the time. It is acknowledged that many other factors could also provide information on availability/continuity of work in the industry, however a complete analysis of all factors is not within the scope of this paper.

2 Employment Patterns in the Electrotechnology Industry

2.1 Industry Employment Data

Total employment in Electrotechnology⁷ in Australia is shown from 1994 to 2001⁸ on graph 1 below.



Graph 1 Source: DEWR unpublished employment data

From the graph it can be seen that:

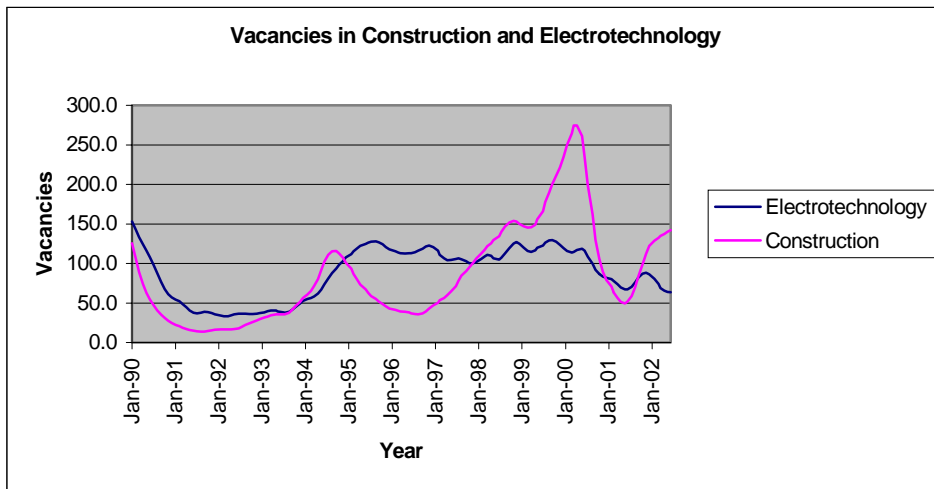
- There has been a downturn in total employment in the Electrotechnology industry from early 2000 to midway through 2001
- The cycle appears to have reversed midway through 2001 with total employment in the industry increasing.

Note: This graph does not show regional or sector differences in employment. These can be significant in the Electrotechnology industry.

⁷ Electrical and electronic tradespersons

⁸ The graph starts at 150,000 in May 1994.

2.2 Industry Vacancy Data



Graph 2 Source: DEWR Vacancy Data

On Graph 2 (above), vacancies⁹ in Electrical/electronic trades are shown for the years 1990 to 2002. The construction industry has been included on the graph for comparison¹⁰.

From the graph it can be seen that:

- Vacancies in Electrotechnology have declined since late 1999.¹¹
- There appears to be some relationship between Electrotechnology and Construction vacancies.
- Changes in the Electrotechnology vacancies while not as volatile as construction, appear to follow approximately one year after a change in Construction vacancies. This is not always the case, as vacancies in Electrotechnology remained relatively stable between August 1995 and August 1999 despite wide fluctuations in Construction.
- The current upturn in construction began in May 2001, this may indicate an upturn in Electrotechnology in the near future.

Given that availability of work is a principal influence on apprentice employment, we would expect from this data that apprentice and trainee numbers will have decreased since the latter part of 1999. Any gains made through the National Industry Skills Initiative are likely to be masked by the larger influence of the current business cycle.

⁹ Vacancies are on an indexed scale to enable comparison between industries.

¹⁰ Employment in Electrotechnology is related to employment in Construction.

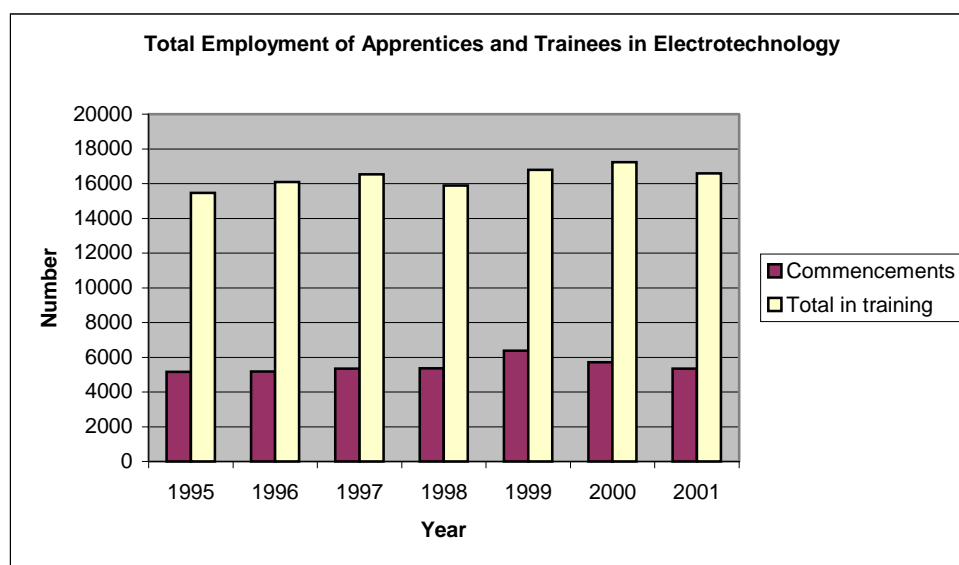
¹¹ Brief increase from May 2001 to November 2001

3 Apprenticeship and Trainee Data

The data available on Electrotechnology apprenticeships and traineeships from 1995 – 2001 is extensive and the following is a brief overview. The main analysis here will focus on the period 1998 – 2001, and quoted annual growth rates are for this period unless otherwise stated.

Full data for commencements, numbers in training, cancellations and completions is shown in Tables 1 and 2 (Section 3.4)

3.1 Total Apprentice and Trainee data for Electrotechnology



Graph 3 Source: NCVET unpublished apprentice and trainee data.

From Graph 3 it can be seen that:

- Commencements increased from 1998 to 1999 then decreased to 2001.
- The total number in training increased from 1998 to 2000 then decreased to 2001.

From Tables 1 and 2 (Section 3.4) it can be seen that some occupational groups moved against these trends:

- Occupations that have moved against the trend and **increased in commencements** are Electronic instrument tradespersons (20.1%), and 'Other Electrical and electronic tradespersons'¹² (53.5%).
- One occupational group that has moved against the trend and **maintained growth in numbers in training** is 'Other electrical and electronic tradespersons' (30.6%).

¹² This category probably includes a high number of electrical apprentices in alternative pathways. Discussion section 3.2.

The decrease in apprentices and trainees in Electrotechnology is consistent with National Centre for Vocational Education Research (NCVER) statistics for the "trades and related" sector of the Australian workforce.

"The number of apprentices and trainees in training in the *trades and related* workers occupational group fell slightly (by 1.9%) to 129 800 at 31 December 2001. The decrease occurred in all major occupations in this group, except for *skilled agricultural and horticulture workers* (up 9.3%)."¹³

According to NCVER this trend continued into 2002¹⁴.

"At 31st March 2002, 38% of all apprentices and trainees in-training were in the Trades and Related workers occupation group. However, there were nearly 3300 fewer apprentices and trainees in this occupation group than at the same time the previous year. Proportionally, this equated to a fall of five percentage points from the 43% reported at March 2001."

3.2 Electrical Apprenticeships

Electrical apprenticeship is a major category of employment in training in the Electrotechnology industry. In 1995 electrical apprenticeship accounted for 70% of employment of New Apprentices in Electrotechnology. This had decreased to 58% in 2001. This decrease coincides with an increase in the category "Other electrical and electronics tradespersons" which rose from 9% of total New Apprenticeships in 1995 to 22% in 2001.

"Other electrical and electronics tradespersons" includes people training in Electrotechnology that do not fit into a traditional category. This group includes people who are training in alternative and/or dual trade pathways. eg. Electrical and Instrumentation. While they are not categorised under Electrician, they will qualify as an electrician as well as having extra skills. They are people we should be identifying, as their specialised training will be addressing skill shortages within the industry.¹⁵

¹³ NCVER Australian apprentice and trainee statistics, At a Glance, December quarter 2001.

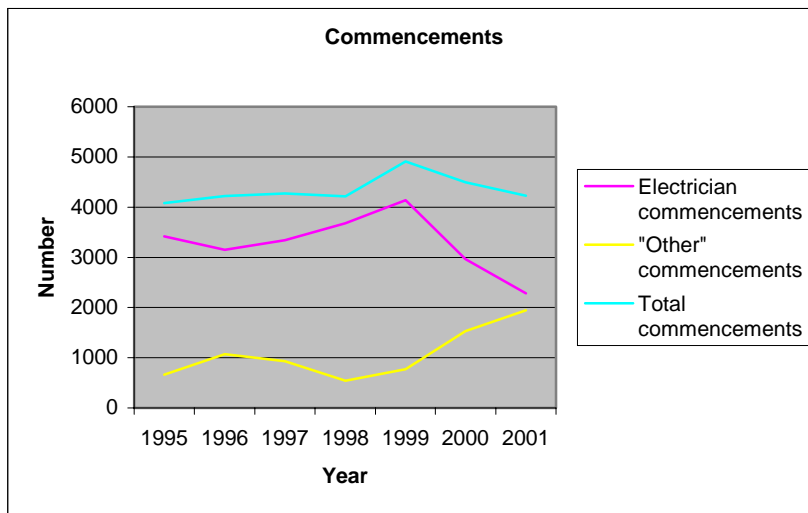
¹⁴ Comparable data for Electrotechnology has not been sourced for this period.

¹⁵ More detailed analysis of the category "Other electrical and electronic tradespersons" to determine the number of electricians in the category, could be helpful in analysing employment of apprentices and trainees in the industry.

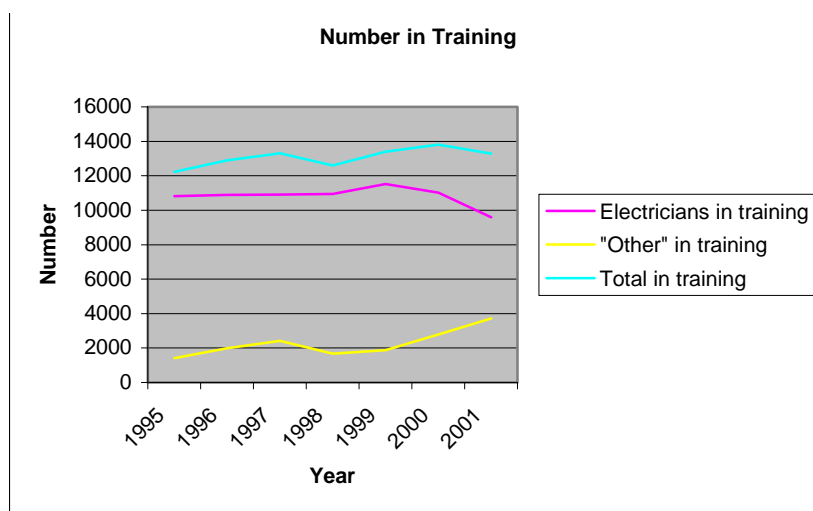
3.2.1 Trends in Electrical Apprenticeships

Graphs are shown below to illustrate trends in commencements and numbers in training for electrical apprentices.

- For Electricians, both commencements and numbers in training increased from 1998 to 1999 then decreased from 1999 to 2001.
- For the category, "Other electrical and electronic tradespersons" both commencements and numbers in training have increased from 1998 to 2001.
- When the two categories "Electrician" and "Other electrical and electronic tradespersons" are combined there is an increase from 1998 to 1999 followed by a decrease from 1999 to 2001. Overall there is slight overall growth from 1998 to 2001, in both commencements and numbers in training. These trends can be seen on the two graphs (below).



Graph 4 Source: NCVET unpublished apprentice and trainee data.

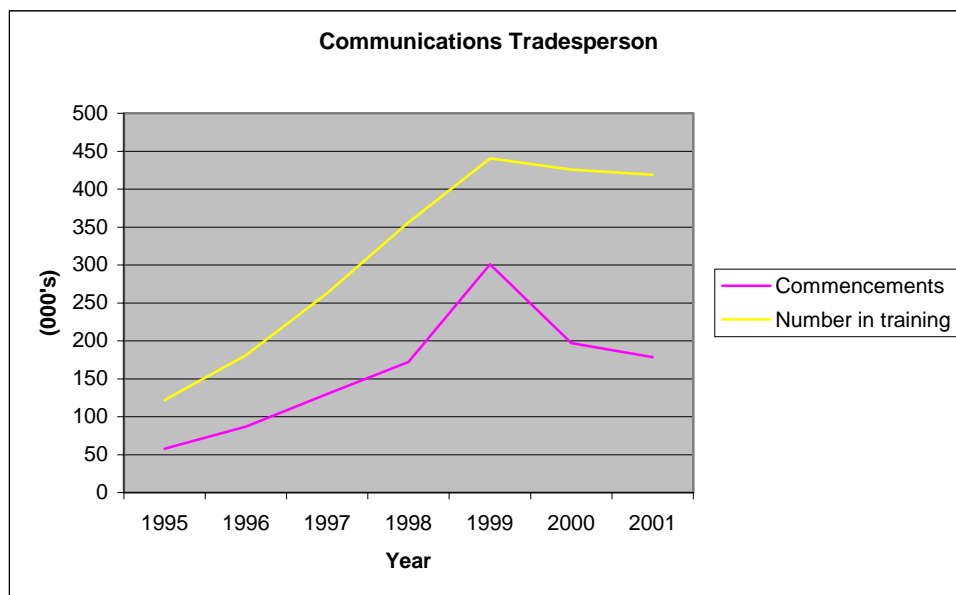


Graph 5 Source: NCVET unpublished apprentice and trainee data.

3.3 Communications Tradespersons

Communications tradesperson is considered a newer high technology occupation. In 1995 it comprised 1% of the total numbers in training. By 2001 this had increased to 3% reflecting an increase in the communications sector of the industry.

- From graph 6 (below) it can be seen that commencements and number in training increased from 1995 to 1999 then decreased from 1999 to 2001.
- Despite this there was still overall growth of 1.3% in commencements from 1998 to 2001. (Table 1 section 3.4)
- Communications tradesperson has shown a similar pattern of employment and vacancies to that across the Electrotechnology industry. The number in training 2000 to 2001 has experienced less decline (-1.6%) than the industry (-3.7%). (Tables 1 & 2 section 3.4)



Graph 6 Source: NCVET unpublished apprentice and trainee data.

Communications tradespersons, which is considered a newer high technology area, has moved from 1% of apprentices and trainees in the workforce (1995) to 3% (2001).¹⁶

¹⁶ Calculated from Table 2, section 3.4.

3.4 Apprentice and Trainee Commencements and Numbers in Training for Electrotechnology

Table 1 : Commencements in Contracts of Training in the Electrotechnology Trades, 1995 to 2001.

	1995	1996	1997	1998	1999	2000	2001	Annual growth 1998–2001 (%)
Electrical engineering associate professionals	12	4	32	24	42	87	3	-49.9
Electronic Engineering Technician	2	1	0	0	0	0	4	-
Electricians	3416	3153	3342	3676	4135	2968	2283	-14.7
Refrigeration & air conditioning mechanics	503	452	569	603	709	619	576	-1.5
Electrical distribution tradespersons	142	107	114	112	145	94	94	-5.7
Electronic instrument tradespersons	89	73	85	96	119	116	166	20.1
Electronic & office equipment tradesperson	286	239	153	147	157	106	86	-16.3
Communications tradespersons	58	87	130	172	301	197	179	1.3
Other Electrical & electronics tradespersons ¹⁷	662	1071	928	540	773	1530	1947	53.3
Sub total	5170	5187	5353	5370	6381	5717	5339	-0.2
Electrical & telecommunications trades assistants	82	329	406	567	703	550	336	-16.0

Source: NCVET unpublished apprentice and trainee data.

Table 2 : The number of Apprentices and Trainees in-training in the Electrotechnology Trades, 1995 to 2001.

	1995	1996	1997	1998	1999	2000	2001	Annual Growth 1998 - 2001 (%)
Electrical engineering associate professionals	23	17	43	59	89	173	139	33.1
Electronic Engineering Technician	2	3	2	2	0	0	3	-
Electricians	10818	10897	10907	10938	11530	11012	9583	-4.3
Refrigeration & air conditioning mechanics	1386	1466	1581	1701	1849	1944	1844	2.7
Electrical distribution tradespersons	556	482	416	375	366	325	330	-4.1
Electronic instrument tradespersons	207	275	313	357	320	325	362	0.4
Electronic & office equipment tradesperson	951	784	606	432	326	228	197	-23.0
Communications tradespersons	122	181	263	356	440	426	419	5.6
Other Electrical & electronics tradespersons nec ¹⁸	1409	1992	2407	1666	1868	2795	3712	30.6
Sub total	15474	16097	16538	15886	16790	17227	16589	1.5
Electrical & telecommunications trades assistants	75	286	345	510	523	547	340	-12.6

Source: NCVET unpublished apprentice and trainee data.

¹⁷ Includes additional Electrotechnology training package (UTE) activity from one jurisdiction. The classification of the UTE package in this instance (ASCO 2128-15) is inconsistent with the NTIS (ASCO 43).

¹⁸ As above

4 The Age of New Apprentices in Electrotechnology

As can be seen in Table 3 (below), there has been a decline in the proportion of New Apprenticeship commencements aged 15 to 19 from 1995 to 2001. This is consistent with the patterns observed in the Skill Shortages in Electrotechnology Report (2000).

Of particular interest is the growth in commencements of those 25 years or more. The growth from 1995 to 2001 represents an increase of 34% in those taking up apprenticeships in that age group.

In 2001 commencements of apprentices over 20 is approaching 40% of the total number. This is important for ongoing strategies to address the issues surrounding recruitment and employment of mature age apprentices.

Table 3: The age of New Apprenticeships in the Electrotechnology Trades *

	Proportion of total new apprentices*		
	1995 (%)	1998 (%)	2001 (%)
Number of Commencements			
15 - 19 year olds	68.3	64.7	62.6
20 - 24 year olds	22	23.7	24.4
25 years or more	9.7	11.6	13.0
All ages	100	100.0	100.0
Total Number in-training			
15 - 19 year olds	28.8	27.4	25.3
20 - 24 year olds	59.3	58.8	59.2
25 years or more	11.9	13.8	15.4
All ages	100.0	100.0	100.0

* Excludes electrical and telecommunications trades assistants

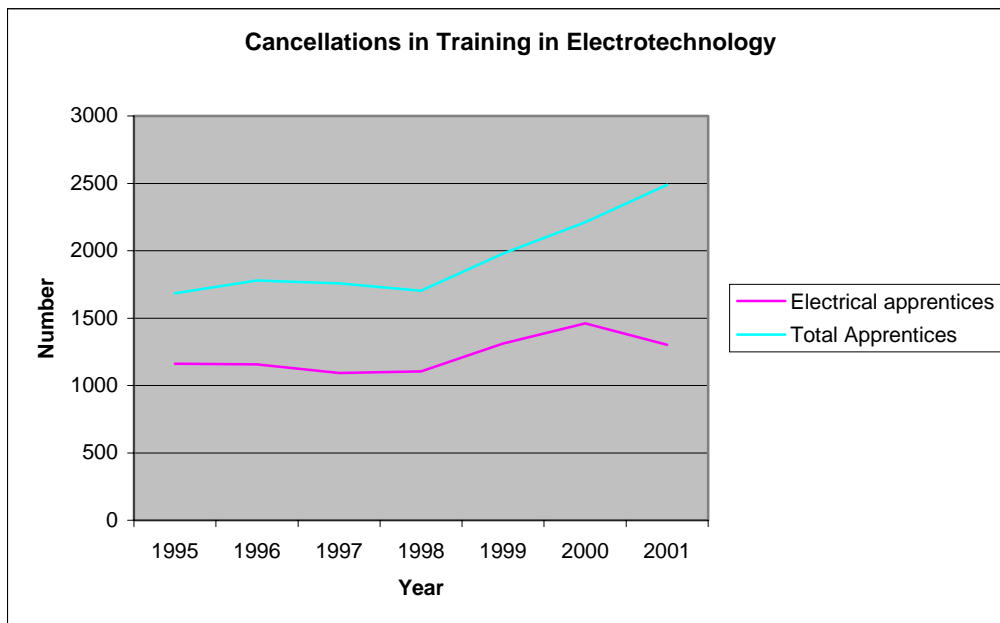
5 Retention of New Apprentices in Electrotechnology

Retention of New Apprentices in Electrotechnology continues to be an issue in addressing skill shortages in the industry.

From graph 7 below it can be seen that:

- Cancellation of contracts across the whole industry has increased from 1998 to 2001.
- Cancellation of contracts of electrical apprentices increased from 1998 to 2000, and has decreased from 2000 to 2001.

Note: Increases in cancellation of contracts coincide with the downturn in employment and vacancies in the industry. (Sections 2.1 and 2.2)



Graph 7 Source: NCVET unpublished apprentice and trainee data.

Research through the National Industry Skills Initiative, in particular the *NCVER Employer Engagement with New Apprenticeships in the Electrotechnology Industry (2001)* and *NCVER Reasons for new apprentices' non-completions (2002)* give insight into some of the reasons for this attrition in New Apprenticeships, and point the way to strategies to address this issue.

6 Conclusions

- Availability of work in the Electrotechnology industry is dependent on the business cycle. Currently the industry is low in the cycle, which is adversely affecting the uptake and retention of New Apprentices in Electrotechnology.
- There is a need to continue the work undertaken through the National Industry Skills Initiative in monitoring and encouraging New Apprenticeship uptake in Electrotechnology, to ensure that future skill shortages and skill gaps can be identified and addressed in a timely manner.
- Further research is necessary for planning the labour requirements of the industry as the dual influences of an upturn in the business cycle and increased technological change begin to affect demand for skill sets.
- The proportion of “mature age” apprentices is increasing, especially in the over 25 years age group. Barriers to the uptake of apprentices in this category need to be identified and addressed.
- Retention of New Apprentices remains an issue, and strategies need to be put in place to identify and address reasons for this attrition.

Final Progress Report
Skills Shortages in Electrotechnology

Attachment 2:

**Achievements of the Electrotechnology Industry
under the National Industry Skills Initiative**

January 2002 - June 2002



Achievements of the Electrotechnology Industry under the National Industry Skills Initiative

January 2002 - June 2002

In measuring the outcomes of the Electrotechnology Task Force it is important to note that:

- The skill shortage issue is recognised across the industry.
- Industry leaders have taken up the challenge.
- Targets and performance criteria are established for each objective, and
- Research is being undertaken that allows policy to be developed on substantiated data.

The National Electrotechnology Task Force and five related working groups, comprising representatives of large, medium and small businesses working in the Electrotechnology industry, members representing the Australian Chamber of Commerce and Industry (ACCI), NECA, ANTA, the National Centre for Vocational Education Research (NCVER) and DEST have worked to:

- Promote Electrotechnology as a career through school and industry links. (Working Group 1)
- Develop a marketing strategy to promote the uptake of New Apprenticeships to both employer and the community. (Working Group 3)
- Work to overcome identified regulatory, legislative and systemic barriers to training in Electrotechnology. (Working Group 4)

Achievements towards the Objectives in the Electrotechnology Action Plan from January to June 2002 include the following:

Objective 1: Establish a National Task Force

The National Electrotechnology Task Force met on April 17th 2002 to:

- Review progress to date.
- Discuss implementation of the next steps of its work under the National Industry Skills Initiative.

Objective 2: Increased Marketing and Promotion

The work undertaken through the Career Information Industry Partnership Program has been continued into 2002. NECA has appointed a teacher to work on this for 2002, Laura Capraro, through the Victorian Government Teacher Release to Industry Program (TRIP). Laura has continued the work to promote careers in Electrotechnology.

Website

The Electrotecfutures website was upgraded in November 2001 by NECA. The look and feel of the site has not changed significantly. Changes include:

- Upgraded administrative function so that changes to the site can be made quickly.
- Addition of an industry section to profile companies in the Electrotechnology industry.
- Upgrade of the Vet in Schools section of the site.
- Addition of links to Commonwealth careers sites, National Training Board site and other career information sites.

Work is ongoing to add more information to the site and ensure that the site is maintained with up to date information for students.

Electrotechnology Secondary Student Award 2002

The award was implemented in 2001, and presented to Braden Kidd from Gisborne Secondary College in Melbourne at the NECA Apprentice of the Year Awards.

NHP Electrical has sponsored the award for 2002. Application forms have been distributed and there has been extensive publicity in industry and educational publications.

1.1 Interactive Experiences for Students

Once important facet of the Careers project was the provision of "hands-on" experiences for students. Two models were trialled in 2001. A brief summary of each is given, along with progress in 2002.

Electrotechnology Careers Camp

This was a highly successful 2-day non-residential camp held at the Victec Skills Centre in Melbourne. Work is currently underway to encourage this concept to be taken up and run in other centres for 2002.

The concept of a camp has been taken up in the Northern Territory. A similar camp was run in Darwin, with students attending the World Skills Championships to see top apprentices working their trade. This camp was enabled by generous industry sponsorship and support from the Territory Construction Authority and Northern Territory University.

Travelling Workshops

Two pilot workshops were set up in 2001. These workshops were highly successful. The dual aims of the workshops:

- Provide hands-on experiences for students in schools; and
- Create contact between schools and industry.

were both achieved with all parties pleased with the outcomes of the pilot programs.

School visits with the existing workshops have continued in 2002.

Promotion of Apprenticeships to Employers

A marketing plan has been drafted and will be implemented in the latter half of 2002.

Objective 3: More Flexible and Alternative Pathways

Much of the work for this objective is being completed through the Group Training Innovative Pathways Project that runs from April 2001 to April 2004, with support from DEST.

Achievements in the first half of 2002 include:

- Report on Barriers to Training in Electrotechnology submitted to DEST February 2002.
- Report on Best Practice Models submitted to DEST June 2002.
- Report on Innovative Pathways submitted to DEST July 2002.

These reports are used by the project to inform its 'next steps' in implementation of new training pathways.

Research is currently underway through the project into the barriers to mature-age apprenticeships.

Objective 4: Evaluation of Barriers to New Apprenticeships

Perceived barriers to training in the Electrotechnology industry are currently being addressed in a number of forums:

Review of the Electrotechnology Training Package

An agreement has been made to review the size of the units of competency within the Electrotechnology training package. This represents a major step in breaking down barriers to flexible training in the industry.

Implementation of New National Electrical Licensing Requirements

Electrical licensing has posed barriers to entry and training in the past. A state licensing system has meant seven different licensing regimes across Australia. NECA has participated in the process to establish a single national licensing regime throughout Australia. This project began in July 2001, and although not yet completed, will conceivably in the future contribute to the breaking down of barriers to training.

National Licensing Project

NECA has had input into the ANTA national licensing project, A Licence to Skill.

This is in addition to work on barriers being completed through the Innovative Pathways project.

Objective 5: A Streamlined Response to Demand for New Skill Sets

Through research and consultation it has become apparent that the full extent of the industry is not known. There is a need for research on the current position of the industry, especially with regard to the communication sector.

The need for training pathways in the electronic and office equipment tradespersons area is being researched and documented through the Innovative Pathways project.

July 2002

Final Progress Report

Skills Shortages in Electrotechnology

Attachment 3:

**Electrotechnology Industry Action Plan
Implementation**

July 2000-June 2002

ELECTROTECHNOLOGY INDUSTRY ACTION PLAN IMPLEMENTATION JULY 2000-JUNE 2002

OBJECTIVE 1—ESTABLISHMENT OF A NATIONAL TASKFORCE OF INDUSTRY REPRESENTATIVES TO TAKE FORWARD KEY ACTIONS IN THE ACTION PLAN

	Outcome	Strategy	Action/Progress	Next Steps
1.1	<p>The Taskforce set up and the first meeting occurred with agreement on roles and endorsement of exposure draft* of the Industry Action Plan</p> <p><i>* The exposure draft is an early version of this action plan, which was current at the time of signing the original agreement with the Minister.</i></p>	<ol style="list-style-type: none"> 1. The National Electrical and Communications Association (NECA) to establish an Electrotechnology Industry Taskforce. 2. Establish a Chair of the Taskforce and agree on the roles of the Taskforce. 3. Endorse the exposure draft and set a sign-off date with the Minister for Education, Science and Training. (DEST formerly DETYA) 4. Establish a project plan (Action plan) recognising industry ownership. 5. Agree to a two-way relationship between the Taskforce and the National Industry Skills Initiative Steering Committee 	<p>The Taskforce was established and the first meeting held on 5th September 2000.</p> <p>Subsequent Taskforce meetings have been held on:</p> <ul style="list-style-type: none"> ▪ 30 Jan 2001 ▪ 15 May 2001 ▪ 7 August 2001 ▪ 15 November 2001 ▪ 17 April 2002 <p>Simon Gerard of Gerard Industries was appointed chair of the taskforce.</p> <p>The Exposure draft was endorsed and signed off with the Minister in July 2000.</p> <p>A progress report was presented to the Minister in June 2001, at the industry skills forum.</p> <p>Action plan was established in July 2000. The Action plan has been a dynamic document and has changed over the life of the Skill Shortages Initiative in response to activities undertaken through the initiative.</p> <p>Link established with the National Industry Skills Initiative Steering Committee</p>	<p>Define the role of the Taskforce from June 2002 onwards with the Minister.</p> <p>Seek agreement to extend the project for the purpose of implementing activities developed in the first three years.</p> <p>Report to the Minister June 2002, including future directions.</p>

OBJECTIVE 2—INCREASED MARKETING AND PROMOTION

OBJECTIVE 2.1

Develop a promotional and marketing campaign aimed at increasing the number of people seeking to commence entry-level training in the electrotechnology trades.

	Outcome	Strategy	Action/Progress	Next Steps
2.1.1	Attitudinal barriers to entry into New Apprenticeships in Electrotechnology identified	<p>1. Conduct research to establish the attitudinal barriers to entry into New Apprenticeships in electrotechnology, including:</p> <ul style="list-style-type: none"> • negative community attitude to an apprenticeship career • poor attitude to / awareness of a career in Electrotechnology • lack of knowledge of Electrotechnology training pathways, articulation and New Apprenticeships 	<p>The following research has been completed:</p> <ul style="list-style-type: none"> ▪ Careers project (October 2000, September 2001) ▪ Employer Engagement research (October 2001) ▪ Barriers Report – Innovative Pathways Project (January 2002) <p>All of these provide a degree of insight into attitudes to New Apprenticeships in Electrotechnology from different perspectives; school students, parents, teachers, employers, training bodies.</p> <p>Note: The results of this research have been used in formulating actions in response to a number of strategies.</p>	<p>Develop a summary report based on the research completed as part of the initiative plus the Victorian Electrical Apprentice Research Report.</p> <p>This summary will be used to:</p> <ul style="list-style-type: none"> • Communicate results of the research to a wider audience. • Inform the next steps of the project.

	Outcome	Strategy	Action/Progress	Next Steps
2.1.2	Communication and marketing strategy that targets employers, government and other industry groups.	<ol style="list-style-type: none"> 1. Develop and conduct promotional campaigns to ensure that stakeholders; <ul style="list-style-type: none"> • Have the knowledge and awareness to advocate the benefits of training for a career in electrotechnology. • Understand the importance of improving the skill levels in the industry • Understand their role in facilitating and promoting entry into the industry 2. Develop awareness amongst employers and industry of the shortage and the need to train. 3. Set targets for achievement based on growth in apprentice numbers in the short, medium and long term. 	<p>Regular articles have been posted in NECA newsletters, ITAB and industry publications to increase awareness of the skills shortages initiative and raise the profile of training in the industry.</p> <p>A marketing strategy to promote apprenticeships to employers has been developed. This will be implemented in the second half of 2002. The findings of the Employer Engagement Research completed in October 2001 were used to inform the strategy.</p> <p>Artwork has been developed to be used in conjunction with the marketing strategy. The artwork includes a full stationery set plus brochures to be distributed to employers.</p>	<p>Development of Interactive section of the careers website (See 2.1.3) to promote New Apprenticeships in Electrotechnology.</p> <p>Implementation of the marketing plan.</p> <p>Hotline established for employers seeking information on New Apprenticeships.</p> <p>Development of a careers section on the NECA website.</p>

	Outcome	Strategy	Action/Progress	Next Steps
2.1.3	Communication and marketing strategies targeting the range of potential entrants and their advisers.	<p>1. Promote a career in the Electrotechnology industry to young people as an attractive choice which offers:</p> <ul style="list-style-type: none"> • A career at the cutting edge of new technology in Australia rather than “just an apprenticeship” • Good remuneration, excellent career opportunities , with prospects for self-employment and desirable lifestyle options • A career pathway which compares favourably with many careers available from commonly perceived better options such as the conventional university pathway <p>2. Promote the Electrotechnology industry as a career destination and provide information on pathways to acquisition of vocational qualifications and vocational skills.</p>	<p>The Career Information Industry Partnership Program ran from July 2000 to July 2001. Materials developed as part of the Program include:</p> <ul style="list-style-type: none"> • Information Pack Hard cover information folder distributed to all schools, RTO's and NACs across Australia. • Careers website Launched November 2001. Continues to be developed. (www.electrotecfutures.com.au) • Information kits Distributed to industry and education to aid in communicating careers information on the Electrotechnology industry to school students. Have been made available on careers website. • Pilot workshops for students Interactive workshops developed and delivered in three states. • Secondary School Student Award Inaugural award 2001. Award assured for five years with industry sponsorship. <p>Business Education Partnership Advocacy project. Work to advocate Vet in Schools Electrotechnology nationally. Many barriers unique to Electrotechnology have been identified. Vet in Schools groups are running in four states, with a fifth planned for 2003. This was held up by a funding issue for 2002.</p>	<p>Continue to promote the industry via industry and educational publications including all Commonwealth career information websites.</p> <p>Research market responses and re-develop website accordingly.</p> <p>Promote the Electrotechnology Secondary School Student Award for 2002</p>

	Outcome	Strategy	Action/Progress	Next Steps
2.1.4	Increase the available pathways	1. Identify possible areas for change in existing training pathways and support mechanisms.	<p>Barriers report produced by NECA as part of the Innovative Pathways project has identified barriers to flexible training pathways.</p> <p>NECA has participated actively in the review of the National Electrotechnology training package in order to address barriers posed through the structure of the training package.</p> <p>Alternative Pathways are currently being identified through the Innovative Pathways project.</p>	<p>Work to address barriers identified in the report.</p> <p>Implementation of recommendations from Innovative Pathways project.</p>

OBJECTIVE 2.2

Develop a promotional campaign aimed at employers of electrotechnology tradespersons to increase the number of New Apprentice opportunities.

	Outcome	Strategy	Action	Next Steps
2.2.1	Increase in the number of employers choosing to employ a New Apprentice.	<p>1. Develop a strategy that responds to the issues identified in the research (Note: This will run in conjunction with promotional campaign 2.1.2)</p> <ul style="list-style-type: none"> ▪ Employer engagement research ▪ Marketing plan (informed by research) ▪ Marketing materials produced and distributed. 	<p>Employer Engagement research conducted. This research found that main triggers for employment were:</p> <ul style="list-style-type: none"> ▪ Size of company ▪ Availability of work <p>Marketing plan completed (See 2.1.2)</p> <p>Marketing materials designed (See 2.1.2)</p>	<p>Implementation of marketing plan.</p> <p>Investigate DEST Industry Training Strategies Programme (ITSPI) to establish relevance to Electrotechnology.</p> <p>Investigate impact of changes to Employer Incentives scheme announced as part of Federal Budget 2002.</p>

	Outcome	Strategy	Action/Progress	Next Step
2.2.2	<p>Development and distribution of a map of existing support services for employers in Electrotechnology.</p> <p>The map is to assist employers to easily access information on employing and training New Apprentices.</p>	<p>1. Develop a map of existing support services.</p>	<p>Work with ANTA to advise on Electrotechnology component of VET Portal project. NECA to comment on the information requirements of electrical contractors.</p>	<p>Develop map of support services.</p> <p>Publish and supply the map to employers</p> <p>Survey/interview employers currently and potentially providing structured training opportunities to identify further needs to support their management of New Apprenticeships. (Research project to be identified.)</p> <p>Initiate strategies to meet these needs</p>

	Outcome	Strategy	Action/Progress	Next Step
2.2.3	Establish the value of Group Training Companies in adding to the skills requirements of the industry	<p>1. Examine Group Training Company (GTC) interface with employer stakeholders to identify:</p> <ul style="list-style-type: none"> Effectiveness of brokerage role and Potential perception that government initiatives dominate industry ownership <p>Describe the issues to be addressed, ie:</p> <ul style="list-style-type: none"> Do we expect GTCs to take on extra electrotech apprentices; Do we expect GTCs to market and engage employers; Which GTCs do we include, ie. only NECA GTCs or regionals as well. <p>Should we be requiring GTC's to look at issues such as:</p> <ul style="list-style-type: none"> Alternative pathways; Shortages by region; Shortages by skill set. 	<p>Participation in ACCI review of Group Training companies representing the views of employers in Electrotechnology. (The findings of this review were presented to the ANTA MINCO in May 2002)</p> <p>Ongoing consultation with Group Training Companies as part of the Innovative Pathways project.</p>	<p>Develop strategies in response to findings, as appropriate.</p> <p>Recommend industry/Government response to implement identified strategies.</p> <p>Implement findings of the Innovative Pathways project. (See 3.1)</p> <p>Implementation of recommendations from the GTC review with respect to Electrotechnology.</p>

OBJECTIVE 3—MORE FLEXIBLE AND ALTERNATIVE TRAINING PATHWAYS

OBJECTIVE 3.1

Identify, develop and pilot flexible and alternative training pathways as a means of increasing the commencement, retention and completion rates for those in training in electrotechnology.

	Outcome	Strategy	Action	Next Step
3.1.1	<p>Identification of issues that need to be addressed in order to develop and implement new alternative pathways.</p> <p>Campaign developed to address identified issues.</p>	<p>1. Research:</p> <ul style="list-style-type: none"> • Characteristics and emerging needs of potential applicants for training. • Issues emerging from current training practices – impact of time-based training, responsiveness to new technologies, reasons for non-apprenticeship pathways, attrition rates, number of entry points. • Current activities supporting development of new training pathways. <p>2. Conduct a research or benchmarking project to examine effectiveness of non-apprenticeship pathways as:</p> <ul style="list-style-type: none"> • A key approach to upgrading current skills of existing workforce • An alternative to entry-level training for electrotechnology trades 	<p>DEST GTC Innovative pathways project implemented April 2001.</p> <p>Activities to date:</p> <ul style="list-style-type: none"> • Formation of National Steering Group • Completion of Statistical report • Completion of Barriers Report <p>Work in progress:</p> <ul style="list-style-type: none"> • Best Practice models report. • Innovative pathways report. <p>Current research reviewed, including:</p> <ul style="list-style-type: none"> • Electrical Apprentice Research Report VUT • Employer Engagement Research • Licensing Review • Group Training Review • Electrotechnology National Training Package <p>Participation in review of National Electrotechnology Training package. NECA has represented the views of the task force on this review.</p>	<p>Pathways developed through the Innovative Pathways project implemented and evaluated.</p> <p>Review:</p> <ul style="list-style-type: none"> • Overseas experience: <ul style="list-style-type: none"> ▪ England ▪ France ▪ Germany <p>Continued participation in the review of the training package. Communication to industry on the outcomes of the review.</p>

	Outcome	Strategy	Action/Progress	Next Step
3.1.2	Identification of Alternative Training Pathways.	<ol style="list-style-type: none"> Develop alternative pathways incorporating as appropriate: <ul style="list-style-type: none"> Cross-industry pathways (more entry points) specific competency outcomes rather than complete or licensed qualification more flexible entry points to training arising from, for example: <ul style="list-style-type: none"> expanded RPL arrangements for recognition of relevant technical skills from cross-industry experience expanded RPL for entry-level skills to improve retention rates, eg key competencies demonstrating aptitude, interpersonal skills 	<p>Barriers to flexible training pathways identified through the Innovative Pathways project.</p> <p>Alternate pathways currently being identified for entry-level new apprentices through the Innovative Pathways project.</p> <p>Implementation of expanded opportunities for RPL in the communications sector.</p>	<p>Implement entry level pathways</p> <p>Conduct further research into opportunities for expanding arrangements for RPL further.</p>

	Outcome	Strategy	Action/Progress	Next Step
3.1.3	Alternative, flexible training pathways implemented through pilot programs.	<ol style="list-style-type: none"> Pilot an alternative pathway developed to address identified issues: <ul style="list-style-type: none"> Select target trainees and promote benefits of new training pathway Identify success indicators/goals (eg higher percentage of target entrants, lower attrition, relevance of qualification outcomes) Monitor outcomes (attrition rate, market demand/recognition, career pathways) Evaluate new pathway in terms of identified issues (employer/trainer/trainee perspectives) Recommend adjustments and promote new pathway as good practice 	<p>Communication to industry of the findings of the Innovative Pathways project.</p> <p>Communication to industry of proposed pathways where they have been identified.</p>	<p>Implementation of pathways</p> <p>Evaluation of pathways</p> <p>Modification of pathways where required</p> <p>Promotion of pathways as best practice in training</p>

OBJECTIVE 3.2

Identify, develop and pilot appropriate pathways and promote streamlined training arrangements for mature-age New Apprentices entering or currently in training.

	Outcome	Strategy	Action/Progress	Next Step
3.2.1	Needs/issues relevant to mature-age New Apprenticeships identified.	1. Research current training arrangements for mature-age apprentices.	Relevant barriers have been identified through the Innovative Pathways Project.	<p>Work with industry to develop strategy to increase number of mature age apprentices.</p> <p>Work with industry to develop strategies to overcome the identified barriers.</p> <p>Project developed for future direction to enable this.</p>
3.2.2	Best practice/models in facilitating mature-age entry into New Apprenticeships identified and promoted/publicised	<p>1. Identify successful or model approaches to issues relevant to mature-age apprentices (customised training, extended RPL, adjustments to industrial and pay arrangements, relevant qualifications/prior career experience)</p> <p>2. Publicise best practice models, new pathways and/or adjusted arrangements to employers</p>	<p>Research currently underway to identify:</p> <ul style="list-style-type: none"> • Best practice models for mature age apprentices. • Specific barriers to employment of mature age apprentices in each state/territory 	<p>Case studies documented</p> <p>Research case studies that address mature age apprentice issues.</p>

OBJECTIVE 4—EVALUATION OF REGULATORY, LEGISLATIVE OR SYSTEMIC BARRIERS TO NEW APPRENTICESHIPS

OBJECTIVE 4.1

Identify and implement a national industry initiative in response to identified, legislative, regulatory and systemic barriers to entry and retention in electrotechnology trades training.

	Outcome	Strategy	Action Progress	Next Step
4.1.1	Regulatory/legislative barriers to entry and completion of New Apprenticeships identified	<p>1. Research to identify impediments arising from:</p> <ul style="list-style-type: none"> • Industry regulations and/or • Complex State-based legislative requirements (vocational training orders, implementation guides etc) <p>2. Monitor current systems and processes to identify systemic barriers to entry</p>	<p>NECA are involved in, and have contributed to national initiatives that address barriers to flexible training on behalf of the task force.</p> <p>License to Skill Report Participation in the ANTA report Licence to Skill which identified impact of industry licencing on Training package implementation. Electrotechnology was used as one case study in this report.</p> <p>Progress in national licensing – 66 Essential Capabilities implemented in 2001. NECA are working on issues with regard to this.</p> <p>Review of National Training Package Neca is participating in this review. The outcomes of the review will steer the next steps in addressing barriers to entry.</p> <p>Barriers identified through the Barriers report completed as part of the DEST Innovative Pathways Project.</p>	<p>In consultation with task force members:</p> <p>Define and prioritise barriers (Regulatory, legislative and systemic barriers to entry, retention and completion of contracts of training.)</p> <p>Consultation with industry to devise solutions. (Examine adjustments or alternative pathways as solutions to problems arising from current regulatory requirements.)</p> <p>Initiation of a national Government/industry response to issues (In particular, issues arising from complex State-based legislation.)</p> <p>Initiatives introduced that provide solutions to identified problems. (Problems arising from existing regulatory and legislative arrangements and systems.)</p> <p>Appropriate adjustments to regulation/legislation and support systems identified and initiated.</p>

	Outcome	Strategy	Action Progress	Next Step
4.1.2	<p>Improve mentoring and support services to New Apprentices and employers in Electrotechnology.</p> <p>(In order to increase entry, retention and completion of contracts of training.)</p>	<ol style="list-style-type: none"> 1. Review and monitor effectiveness of New Apprenticeship Centres in supporting and mentoring New Apprentices, in order to identify further needs for such services. 2. Research and identify current good practice case studies of effective mentoring or support arrangements for employers and New Apprentices in the industry 	<p>Good practice currently being identified through research for Innovative Pathways project.</p>	<p>Conduct review of NACs support and mentoring.</p> <p>Investigate outcomes of EEQSBA project into NAC support and mentoring.</p> <p>Document case studies.</p> <p>In response to review and case studies, development of a project aimed at improving services, and incorporating Supervisor Training.</p>

OBJECTIVE 5—A STREAMLINED RESPONSE TO DEMAND FOR NEW SKILL SETS

OBJECTIVE 5.1

Co-ordinate relevant industry research to ensure regular updates on changing needs for structured training in electrotechnology and market demand in new technology areas

	Outcome	Strategy	Action/Progress	Next Step
5.1.1	Identification of key information necessary to ensure informed industry response to changing needs established	<ol style="list-style-type: none"> 1. Consult with relevant research bodies (NCVER, DEWRSB, DEST) to identify appropriate sources of relevant information and issues relating to collection of data (eg currency of relevant training statistics, monitoring of developments in technology, identifying and projecting changes in market demand) 2. Establish characteristics of key information required and frequency of reports 	<p>Through consultation, the need for research on current position of the industry has been established. I.e. We need a Snapshot of electrical-communications industry as it stands today, in order to formulate policy for the future.</p> <p>Communications seminars conducted regularly in each state.</p> <p>Planning for a communications forum late in 2002.</p>	<p>Desktop research to establish what information is currently available through relevant research bodies.</p> <p>Identification of key information not currently available through relevant research bodies.</p> <p>Development of process to enable this information to be collected and analysed.</p> <p>Development of process for systematically identifying new skill sets required by industry.</p>

	Outcome	Strategy	Action/Progress	Next Step
5.1.2	Identify and commission research to collect and analyse data in relation to electrical - communications sector.	<ol style="list-style-type: none"> 1. Research bodies monitoring developments in technology, including established industry or enterprise reporting mechanisms 2. Work with providers of relevant information on VET activities, to ensure that changing technology and market demand in the electrotechnology industry is met, and seek regular reports on identified key information items 	<p>A brief is currently being developed for research to establish the current position of the electrical - communications sector of the Electrotechnology industry.</p>	<p>Industry Forum to:</p> <ul style="list-style-type: none"> • Examine implications of research. • Set future direction for the industry.

	Outcome	Strategy	Action/Progress	Next Step
5.1.3	Systems established to support effective industry-wide response to updated information on changing training and market needs	<ol style="list-style-type: none"> 1. Identify existing barriers to effective response to changing markets and training needs in electrotechnology. 2. Establish communication strategies and formal networks to facilitate an efficient, industry-wide response to identified changes in market demand and training requirements 	DEST Innovative Pathways Project by: <ul style="list-style-type: none"> ▪ Identifying barriers to change ▪ Devising and implementing strategies to overcome these barriers Participation in review of the National Electrotechnology Training Package (refer 2.1.4)	Document and implement findings from project.

OBJECTIVE 5.2

Investigate actual and emerging needs for communications and electronic and office equipment tradespersons and identify an appropriate response

	Outcome	Strategy	Action/Progress	Next Step
5.2.1	Identify current and business needs for these trades.	<ol style="list-style-type: none"> 1. Investigate current and projected business needs for these trades 2. Define the level of need for New Apprenticeships for these specific trades 3. Examine alternative pathways to achieving competency in these trade skills, ie identify how far present industry need for these skills is actually being met by electrical tradespersons 	Research through DEST Innovative Pathways project in identification of training pathways.	Development and implementation of training pathways to meet industry needs. Identify target employers Promote training to potential trainees Promote alternative or new training pathways to achieve required skills as appropriate
5.2.2	Campaign to increase employer and RTO awareness and promotion of training for these trades in place as appropriate	According to the findings of above research, conduct a marketing/promotional campaign to increase numbers of New Apprenticeships available in the specified trades and the number of entrants into training	This strategy will be implemented pending findings from research.	Promotion of pathways once they are in place.