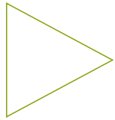




ULTIMIT BENEFIT

Women Trainees in the Electricity Supply Industry



Foreword



TIM DENSEM

On behalf of the Electricity Supply Industry I welcome the publishing of this important research about the role of women in our industry.

This research project represents a milestone in the evolution of this industry which is perceived as both male orientated and male dominated. We have taken another step towards a better understanding of how we might more effectively address critical skill shortages by developing strategies for a more diverse workforce. This particular research has been based around nine women who have made a place for themselves in our industry and shared their experiences.

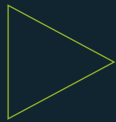
In commissioning the research ESITO never expected that it would be provided with all the answers. The answer to the challenge of attracting and retaining more women will need to come from the industry itself. However a crucial step has been made with the establishment of Ultimit.

The launching of Ultimit, a resource to support the recruitment and retention of women for trade and technical roles in the Electricity Supply Industry, is a crucial response from the Electricity Supply Industry and ESITO demonstrating our commitment to changing and improving our workplace.

I would like to thank the Ministry of Women's Affairs for their support, Heather McDonald and Rose Ryan of Heathrose Research, and everyone who has participated in the research for their contribution in helping make a positive difference to our workforce.

Tim Densem
ESITO Chief Executive





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Executive Summary

IN BRIEF

- This research project tracked a cohort of nine women trainees in two traditionally male-dominated roles, line mechanics and cable jointers, in the Electricity Supply Industry.
- Women trainees brought new skills to the roles, with their attitude to health and safety practices being described as an asset.
- Some teams were unsure how to work with the women, and a protective attitude did at times hinder the women's progress. Some women were, at times, isolated by their teammates.
- These inevitable rough patches were able to be navigated in large part through good support from whānau and family, other trainees and workplace mentors. However, levels of resistance to having women in these roles did not wane considerably among operational staff.
- Good human resources practices helped to integrate the women, but these could have been enhanced by clearer expectations both for the women and the teams on how to work together.
- Some challenges remain, for example, in how women can reconcile long and unpredictable hours with family responsibilities.

Key Findings

This research project tracked a cohort of nine female trainees as they completed their apprenticeships as line mechanics or cable jointers in the Electricity Supply Industry in New Zealand.

The project's key findings relate to how the women negotiated their way as trainees in a traditionally male trade, and also to the human resource practices that were used by their employers through this process.

The findings draw attention to the skills that women bring to these non-traditional trades that differ from those usually offered by male trainees.

They also identify a need for work and family networks to support women working in non-traditional trades, and for work practices to address health and safety concerns that may be specific to (or more likely to be experienced by) women.

Background

The project was sponsored by the Electricity Supply Industry Training Organisation (ESITO) in New Zealand, and involved the recruitment of nine women trainees in two electricity supply companies – one focused in transmission, the other in distribution.

The project followed previous research by ESITO that had revealed deeply entrenched views held by some managers about the capability of women to do the work, male domination of the industry, and the suitability of women for particular roles.

It was apparent to ESITO that female line mechanic trainee numbers would not increase without significant change in recruitment and workplace practices and culture.

The trainees

The women were recruited through a targeted recruitment campaign in 2010. This generated quite a degree of interest and 25 women applied for positions at each company. Out of this pool of 50, nine were chosen.

The features of the job that attracted women included working outside, work that was more interesting than that generally available to the applicants, the chance to learn new skills, and the reputation of the companies as good employers.

Co-workers' initial reluctance

The women were enrolled in training for qualifications from the beginning of their employment. Initial training largely involved observation and ground work, but gaining hands-on experience of technical aspects at an early stage proved to be crucial: trainees needed enough exposure to hands-on work to make timely progress in achieving their qualifications. Some, but not all, trainees had difficulty in gaining this experience due to a reluctance within their teams to offer sufficient hands-on experience. This was particularly true at the early stages in their training.

Health and safety

Good health and safety management systems are critical in the industry, given the nature of the work and the conditions under which it is carried out. The employment of women raised some new health and safety challenges, including the sizing of personal protective equipment, hazards related to reproductive health, psycho-social hazards, fatigue management, and safe limits for physically demanding work.

In one company, a “line-fit” programme was put in place to build inner core strength for all line mechanics. This was designed to have an impact on the incidence of muscular-skeletal disorders.

The women’s approach to health and safety was often described as an asset, involving better identification of risk, being more focused on detail, and ensuring that proper procedures were followed.

Team relationships

Good team relationships are also critical in the Electricity Supply Industry because of the high-risk nature of the work and the need to communicate clearly and cooperate fully. A range of qualities is associated with being a good team member. For women to become successfully integrated into a team, they were expected to “get stuck in”, including volunteering for work, asking questions, and taking the initiative. These expectations were not always explicit, however, and the women trainees often had to work these expectations out for themselves.

To integrate the women successfully, teams needed to adjust how they operated, rather than expecting the women to make all the changes and simply become “one of the boys”. At times, the women felt isolated and/or overly protected by their colleagues from the rigours of the job. Neither of these strategies provided effective solutions for the women or the teams they worked in. Over time however, most of the women and their teammates found a way forward to where the women weren’t treated as “special”. This often involved women proving themselves to their team, by just carrying on with the work, and intervention from managers. Despite this, and the view of managers that strength was less important than technique in undertaking the work, supervisors and team leaders reported ongoing resistance to including women trainees on some particularly difficult jobs.

On-going support was critical for building women’s resilience and for supporting them through rough patches. This support came from family and whānau, friends, other trainees, and mentors at the workplace.

Unclear performance expectations

Performance expectations were also not always clear or explicit. This led to differing views within companies about how well the trainees were performing, and left trainees confused about what was expected of them.

It was easy for gender to be invoked as an explanation for such lack of progress, rather than recognizing the need for explicit (and objective) standards of what was expected of trainees and the rate at which they were expected to progress through their training.

In the absence of these understandings at a team level, confusion sometimes arose, with trainees left in the dark. Some teams and team members were uncertain as to whether they should expect women trainees to meet exactly the same standards as was expected of male trainees or whether to apply a different standard because of their gender.

Overall, good human resource management practices had a considerable impact on the extent to which the trainees and the employers were able to manage obstacles that arose.

Ongoing challenges

Continuing challenges in integrating women into non-traditional trades jobs remain. Despite the companies approaching the project with a view that they were ignoring 50% of potential employees at their peril, the levels of resistance to having women in line mechanic roles did not wane considerably amongst operational staff.

The companies could have alleviated this resistance through clearer expectations of how the newcomers were to be treated by the existing workforce. There are some attributes and qualities that are valued in line mechanics that are unspoken but which make a difference to the regard in which line mechanics are held. These are more difficult for women to meet and include “getting stuck in” to physically demanding tasks and joking around and “being one of the boys”.

Lastly, demands associated with the nature of the work, including long and sometimes unpredictable hours, project work that may involve working away from home, and the demands of managing work and family – they also remain.

Introduction

THIS RESEARCH PROJECT SET OUT TO FIND ANSWERS TO THREE KEY QUESTIONS:

- Does isolation and lack of a peer group limit women's recruitment and retention in line mechanic jobs?
- Does the health and safety model used in the Electricity Supply Industry for line mechanics sufficiently consider issues that might affect women relative to men?
- What are the work-related attributes and qualities that are valued in line mechanic (including trainee line mechanic) roles in the industry and to what extent do female and male trainees exhibit these?

The answers to these questions revealed the complexities of changing established patterns of a working culture. The conclusions that can be drawn apply to any company that is looking to recruit and retain women (or any other “new group”) into non-traditional occupations.

Occupational segregation has long been noted as an obstacle to women achieving full equality in the labour market. There has been a marked decrease in vertical segregation over the past two decades – women have been employed in managerial and professional positions in much greater numbers than before – but the extent to which women have been employed within non-traditional occupational groups has been more limited.

Where change has occurred, it has mainly been in professional occupations, for the benefit of more highly educated women. Much less change has been evident in unskilled and semi-skilled occupations, including trades. The effect of this has been an increase in the level of inequality amongst “these” women as a group. Occupational segregation remains particularly marked in trades occupations.

This research project was intended to address these issues in a heavily male-dominated occupation that is part of a heavily male-dominated industry. The “Women in Power” project, as it came to be known, worked to recruit women into positions as line mechanics and cable jointers in the Electricity Supply Industry in New Zealand, and to observe them as they completed the requisite Level 4 qualification through the Electricity Supply Industry Training Organisation (ESITO).

As we note later in our literature review, such initiatives have become more common over recent years as attempts are made to address occupational segregation. A number of studies have found that being a sole female recruit in a male industry can lead to feelings of isolation, with women feeling the need to change their behaviours in order to “fit in”. A novel feature of this particular study is that the women trainees were recruited as a “cohort”. One of the key research questions was the extent to which a cohort effect would come into play and provide support for the women as they undertook training in the industry.

The project started in late 2010 and finished at the end of 2012. It was established by the Electricity Supply Industry Training Organisation (ESITO), with the support

of two member companies, as an initiative to support the recruitment and qualification completion of a cohort of female trainees. Its purpose was to explore, from a company perspective, the value added by female trainees to the Electricity Supply Industry and to understand barriers to female participation, whether real or perceived. In particular, the project aimed to:

- support the employment of a cohort of female trade trainees in each company as a demonstration group
- assist the trainees to complete their qualifications within the industry
- record company experiences in responding to real and perceived barriers to the recruitment and retention of the female trade trainees.

In order to gain insights from the project, the research was conducted by interviewing trainees and key people within the companies. In particular, ESITO was keen to explore the strongly held attitude that females in general were not capable of successfully becoming line mechanics. A previous study had uncovered an attitudinal barrier to female participation in such jobs, based on the assumption they were not physically strong enough to carry out the work – and that this posed a health and safety risk.

The three research questions for the project were largely constructed around the issues identified above, and from a scan of the literature:

- *Does isolation and lack of peer group limit women's recruitment and retention in line mechanic jobs?*
This was asked for two reasons. First, it would test whether having a cohort or critical mass of women might make a difference both to the trainees' retention in training and in the industry. Second, it might identify any specific features of having a female cohort that support trainee retention.
- *Does the health and safety model used in the Electricity Supply Industry for line mechanics sufficiently consider issues that might affect women relative to men?*

Within the industry, health and safety is a central area of organisational concern. The work is not only dangerous, it commonly involves heavy physical demands and is often carried out in physically demanding conditions. The high levels of competition in some parts of the industry also create conditions that exacerbate work pressures. At the same time, some physical demands can be reduced through the use of technique and technology, and by better work organisation. It was intended that the research would consider the safety cultures within the companies, the extent to which these approaches were effective in meeting both company and the female trainees' health and safety requirements, and in identifying any barriers and solutions to addressing health and safety concerns.

- *What are the work-related attributes and qualities that are valued in line mechanic (including trainee line mechanic) roles in the industry and to what extent do female and male trainees exhibit these?* Beyond understanding how workplace dynamics facilitate or constrain full participation by a female cohort in training and work, the research sought to understand what advantages, or differences, might exist for companies from increasing gender diversity in line mechanic roles. It was intended that this process would include contribution to the company's systems and processes, customer relationships, team relationships and communication, and organisational management. This is important in order that the findings are of practical use in the industry.

The report is structured as follows: **Section One** provides a general review of the literature on women in non-traditional trades, and identifies some issues related to industry training in New Zealand that are relevant to the project.

Section Two gives brief description of the Electricity Supply Industry in New Zealand then provides general context, together with an identification of the issues related to the workforce. Following this, **Section Three** identifies the concerns that resulted in this project being put in place in 2010 and describes the initiative. This latter section includes a summary of the methodology and process used for the research – its more detailed description is in **Appendix One**.

Section Four and the conclusions comprise the bulk of the report. They outline the key findings from the research, based on the lived experiences of trainees, their supervisors and work colleagues, and others involved in the training process. These illustrate the complexities of changing established patterns of working culture within any industry. While these particular case studies focus on employing women in a male dominated industry, the findings are likely to be relevant to the employment of any employee group that is different in some way to the dominant group of employees. The case studies demonstrate the crucial importance of good human resource management practice, together with the determination and commitment that was needed by both trainees and the companies themselves to turn intention into reality. The final discussion and conclusions take the learning from the project and the research forward by making recommendations for other companies looking to recruit and retain women into trades and other non-traditional occupations.



Section One

WOMEN TRAINING FOR NON-TRADITIONAL TRADES

This section outlines some of the relevant literature related to women training for non-traditional trades. It covers two specific issues – the current state of play in New Zealand in relation to the numbers of women working in or training for non-traditional trades, and research setting out the approaches that have been successful in promoting the completion of qualifications and decreasing occupational segregation.

In addition, given the high proportion of Māori within both the industry and the cohort group of this project, specific attention is paid to existing knowledge on learning styles that are relevant for Māori and for organisations in which high proportions of Māori are employed.

Women in Trades and Industry Training

Internationally, the number of women working in skilled trades occupations is very low. For example, women in skilled trade and technology careers make up less than 3% of the total Canadian workforce (Skills Canada, 2011) and comprise only 1% of qualified trades people in the UK. Some shifts are, however, starting to occur with increases in the numbers of women being taken on as apprentices having been noted in both the US and Australia over recent years.

The same is true in New Zealand. Recent analysis of census data between 1981-2006¹ shows that while the ratio of women to men increased in traditional trades between 1981-1986 and between 1992-96, it declined in the decade to 2006 (Newell, 2010). Overall between 1981 and 2006, the gender differences in men and women's distribution in trade occupations decreased, although only very slightly – from 16.9% to 15%. In 2006, trades workers were the most male-dominated group of any occupation at the major group level, with a similar situation in the UK and Australia.

Given that the route into employment as a qualified tradesperson is through industry training, the operation of New Zealand's industry training system in increasing the number of women in trades training is relevant. In this respect, the evidence is disappointing.

Figures provided by Education Counts² show that of the 201,610 industry trainees enrolled in New Zealand in 2009, only 30.8% were women, and that the employee participation rate in industry training³ was only 6.1% for females as opposed to 12.1% of males.

These overall figures mask considerable differences by industry, with figures from the Tertiary Education Commission for 2011 showing that only seven (out of 36) ITOs enrolled more than 50% female trainees, and that for 21 ITOs fewer than 30% of trainees were female⁴.

Attempts to redress this imbalance were incorporated into the policy objectives of the Modern Apprenticeship Scheme (MAS) when it was introduced in 2000. The MAS was promoted as an opportunity for improved female participation in industry training and increased diversity in vocational education and training. However, analysis by the Human Rights Commission (HRC) (HRC, 2011, pp63-65) shows that if hairdressing is excluded, the proportion of young women completing Modern Apprenticeships in 2010 was 8.4%, and that in those sectors which have the highest numbers of apprenticeships (building and construction, engineering and motor engineering) the rates of female apprenticeships are particularly low. The HRC concludes that the Modern Apprenticeship scheme has failed to deliver gender equality.

Piercy et al (2006), Murray (2003) and McGregor and Gray (2003) all note the lack of a specific focus on gender within the overall design of industry training policy and entrenched historical barriers to participation. Murray concludes that the clear exclusion of women illustrates a lack of commitment to equity in the overall design of the Modern Apprenticeships initiative, while Piercy et al argue that omitting to specifically target female workers in policy challenges the ability of reforms in the industry training system to contribute to increasing social inclusion. McGregor and Gray (2003) note the elimination of special measures to increase participation of disadvantaged groups and recommend a range of interventions to reduce barriers to participation, including the provision of incentives for the recruitment of women where particular ITOs have made a commitment to diversity.

At the same time, it must be recognised that industry training arrangements can only be entered into once an individual is an employee, suggesting that the recruitment and selection practices of employers in male-dominated industries need to come under scrutiny. In this respect, research over a number of years has noted the tendency for employers to “play it safe” when recruiting staff who have different demographic characteristics from what they

¹ More recent data is not available as a result of the postponement of the 2011 census, owing to the Christchurch earthquake.

² <http://www.educationcounts.govt.nz/indicators/data/student-engagement-participation/3756>

³ The employee participation rate in industry training is the proportion of employees in the labour force of working age that are engaged in industry training (including Modern Apprenticeships).

⁴ See <http://www.tec.govt.nz/Resource-Centre/>

are accustomed to. Even where discrimination is not direct, indirect discrimination may result from the application of recruitment and selection criteria (such as height or the requirement for very specific knowledge requirements) that advantage one group over another.

Very little research has been undertaken on the recruitment and selection practices of New Zealand employers. Few cases of direct discrimination come before the courts, although indirect discrimination (when an apparently neutral requirement in a job position has the effect of disadvantaging one or more groups of people) may in fact be more common.

Indirect discrimination is usually unintentional, but occurs when generalisations about skill, ability or personal aptitudes in a defined group are assumed to be true for individuals. An example of this is when an aggregate tendency for men to be stronger than women is assumed to reflect the strength of individual men and women.

Indirect discrimination practices are likely to extend beyond individual employers and become assumed as “normal” in some industries. Writing in New Zealand, Hodgkinson (2006) focuses on barriers to women entering and remaining in the building and construction industry, where only 1.79% of manual workers are female. She points to a lack of leadership in the industry to promote diversity, a poor overall public image, lack of industry knowledge about the business benefits of diversity, a lack of knowledge amongst women of the options open to them, and stifled opportunities and a lack of support for women working and training in the industry.

Despite the obstacles, a number of women overcome them to successfully learn a trade and become qualified. There are a number of common themes in the literature about their motivations for doing so and the strategies that they employ along the way. One study of 43 women in the construction sector in the UK (Dale et al., 2005) reported that women working in non-traditional trades settings benefitted from working in an area they felt passionate about, and that their choice of sector had improved their quality of life, had brought increased job satisfaction, empowered them to take control of their lives, and for some, lifted them out of poverty.

Other benefits for women working in non-traditional trades cited in the UK research included:

- ***scope for self-employment that enabled them to combine domestic and caring responsibilities and paid work***
- ***better pay than they had experienced in traditionally female areas of work***

- ***some employers recognising the business benefits of: meeting the needs of a diverse customer base; having highly skilled and committed employees (because they had to do better than men to succeed); and women tending to have better communication and interpersonal skills that enabled businesses to be more competitive and responsive.***

Overcoming barriers and reducing occupational segregation

The desire to reduce occupational segregation has resulted in a range of initiatives over recent years designed to improve gender equality, and equality for other groups who experience labour market disadvantage. Distinctions can be made between policy-level initiatives and those in place at an organisational level.

Policy approaches and initiatives

The most common policy approach to reducing occupational segregation has been through awareness-raising and education, of both women themselves and of employers. Writing in Canada, Vojakovic (2008) notes the importance of adopting a long-term approach addressing educational, recruitment and retention issues. This requires a broad-based partnership of all the main stakeholders, with leadership commitment at a political and industry level. Education and training for women needs to include technical and non-technical education, be flexible to cater for different needs, and to build the view amongst families, educators, and career advisors that trades are a suitable career option for women. At the same time, she argues, there is a need to develop and market the business case for employing women and put in place initiatives aimed at employers to influence recruitment methods, workplace culture and practices.

Such education and awareness-raising initiatives were put in place in the wake of a 2005 investigation by the UK Employment Opportunities Commission (EOC) into the segregation of women and men in training and work. This work focused on occupational segregation and apprenticeships in five sectors: construction, engineering, plumbing, information and communications technology (ICT) and childcare. The findings showed the UK’s “education to training to work” system was failing, in particular, for young women from lower socio-economic backgrounds by channelling them into generally lower paid jobs than young men and not opening up genuine opportunity and choice.

The EOC report recommended a number of actions, including:

- careers education being statutory and subject to inspection on gender equality

- teachers or advisers being trained to open up choices, challenge gender stereotyping, and promote non-traditional work opportunities
- employers being encouraged to offer at least one non-traditional placement
- vocational training schemes designed with the needs of atypical trainees in mind using best practice:; taster courses for young and adult apprentices; ensuring young people and adult women trainees have more support to find work placements; and local support networks for atypical trainees on training and apprenticeship schemes
- promoting the reduction of occupational segregation, not just as an equality issue, but also as a business and productivity issue
- delivering national strategies to tackle occupational segregation in policies to raise productivity and skills.

One year later, the EOC reported that high levels of government and other support had seen job segregation moved up the agenda in efforts to close the gender pay gap, address skills shortages and improve UK productivity. In particular key developments included:

- publication of apprentice pay rates demonstrating the pay differential across sectors and giving incentives for girls to choose non-traditional trades for higher wages
- the numbers of women going into non-traditional apprenticeships had increased slightly
- a number of new employers had agreed to offer non-traditional work placements for girls
- a change in website practice in offering non-traditional work experience placements for girls.

In the New Zealand context, similar recommendations for education and awareness-raising have been made by the Human Rights Commission. However, Tracey (2009) in an essay on the “Girls can do anything” campaign, which ran in New Zealand in the 1980s, suggests that education on its own is not enough. She argues that while the campaign was a pivotal educational initiative launched to encourage girls to consider an apprenticeship in the trades, it failed to achieve a major shift in the attitudes towards and employment of women in non-traditional trades. Respondents in her study identified the initiative as simplistic and lacking the approach needed to change attitudes and behaviours on the scale needed.

Tracey points to the need for support networks targeted at women apprentices as a means to counter the culture of trade environments and the difficulty of being the only woman in the workplace.

In addition to education and awareness-raising, some policy attention has been paid to the importance of “life-course” approaches to policy in respect of encouraging women into non-traditional trades. Bartlett (2009) notes that women can become locked into traditional occupations at an early stage in their careers, but at an older age (sometimes after time out of the workforce to raise children) they can benefit from the opportunity to try something new. Similarly, Vojakovic (2008) notes the importance of recognising the value of women returners to the labour market because of the skills they have built up through previous employment. The opportunity for women to earn higher wages in a non-traditional trade can result in longer-term family well-being, although many of these returners have financial and family responsibilities that make it difficult for them to enter into training commitments,

Organisational and industry-based initiatives

In addition to broad-brush policy initiatives, some countries have designed more specific initiatives to effect change at either industry or organisational levels. For example, strategic plans to promote women in construction trades have been developed in British Columbia and Australia (Women in Leadership Foundation, 2007, Desic, 2009). The British Columbia plan was the culmination of a year-long study involving people from across the industry. It highlighted the business benefits of employing women, based on testimonials from employers and women. Both it and the Australian plan include recommendations that address:

- attracting and recruiting women
- retaining women in the industry and creating industry pathways into para-professional and professional careers
- the business benefits of women as employees of choice
- industry commitment to gender equity.

A similar initiative in the UK on women in manual trades examined the reasons for gender segregation in this sector and the impact of policies to combat social and economic structural discrimination (Clarke et al, 2006). A survey of building service departments for local authorities found that those which were successful in recruiting women into the construction workforce took active measures such as:

- targeting recruitment with positive images and welcoming messages, using a range of outlets for advertising, and having women on the recruitment team
- providing “taster” days, work experience for trainees, information on entry, guidelines on harassment and working alone, flexibility in working arrangements, support for pregnant women, and childcare
- women-only training workshops

- facilitating women-only meetings with elected women representatives.

A study of 16 women in training in trades at the Illawarra Institute in New South Wales pointed to two key findings: those who were successful in gaining employment in manual trades had families where parents or siblings were already trades people, and that key strategies for encouraging women into manual trades included introductory and pre-apprenticeship courses, preferably involving work experience; clustering female students; and support from teachers in opening up job opportunities (Shewring, 2009).

Strategies for individuals

In addition, research has identified the strategies that have been put in place by individual women to both gain employment in non-traditional trades and, more importantly, to develop support networks that allow them to stay there. The strategies most commonly employed in Dale's (2005) study of the construction sector included:

- having at least one person who believed in them
- having access to women-only training, which inspired a number to start training
- training with female peers, flexible delivery of training, and childcare provision
- working for good employers who were open to employing women and recognised the added value and business that employing women could bring
- in the public sector, having the protection of equal employment opportunities policies.

New Zealand women in non-traditional trades

In a New Zealand context, mixed approaches have generally been used to encourage women into non-traditional trades. A major study undertaken by the New Zealand Council for Educational Research for the Ministry of Women's Affairs involved a study of young people's career decisions and gender segregation in trades. It focused on how and why young people navigate or avoid trades-related pathways. It found that some factors that appeared to open up non-traditional trades-related pathway options for some young women included:

- families that disrupt gender-norming and are interested or active in trades-related areas
- media and careers information that realistically presents (credible) individuals/characters in (realistic) non-traditional careers, in addition to further support for young people's capacity to make sense of (and perhaps critique) media/information messages
- schooling that minimises an academic/vocational divide, and provides active support for girls to explore trades-related learning experiences in ways that do not close off other options
- trades training and work that legitimises women's place in the field; challenges its conflation with and dominant/hegemonic constructions of masculinity; and resists discrimination and double standards.



Improving the quality of industry training and workplace-based learning

Although it is not the direct focus on this study, initiatives that are being put in place to lift the overall quality of industry training and workplace-based learning in New Zealand are also relevant. Learning that is focussed on the needs of trainees must inevitably recognise any psycho-social issues they face in the workplace that might interfere with the progress and completion of their training. In this respect, recent research in New Zealand has drawn attention to a number of factors influencing trainees. Vaughan et al (2011) draw attention to the need for the prioritisation of learning within the workplace, both by providing resources for training and having active support from managers or training personnel. Structured learning processes and clear expectations of employees, structured learning activities, learning that is “scaffolded” through the gradual withdrawal of support, and the opportunity to get feedback were also identified as important components of successful learning. Similarly Holland (2009) argues that relational models of mentoring, in which mentors treat learners with dignity and respect while meeting their learning needs, are more effective in achieving good learning outcomes.

The demographic profile of the Electricity Supply Industry also demands that attention be given to research on whether Māori trainees have particular ways of learning that require organisational

attention. An increasing body of knowledge suggests that this is indeed the case.

For example, research focusing on Māori educational models has examined the relationship between a Māori worldview and its relationship with learning. Ho, et al (2004) identify the salient features of Māori educational traditions as incorporating, collectivism, respect for elders, and cooperative and interactive learning, as well as a focus on the practical aspects of learning. Hemara (2000) and Ferguson (2006) point to the importance of reciprocity and shared learning (ako) for both students and teachers. Other research discusses a more general sense of connectedness, inclusion and balance within educational practices.

More recently, Kerehoma (2012) has argued that Māori operate within a learning framework that incorporates distinctive components drawn from a Māori cultural context. The concepts of māhakitanga (humility), tauutuutu (reciprocity) and kanohi ki te kanohi (face-to-face interactions) are important learner behaviours, and within the learner’s environment, it is important for them to experience collective approaches to learning, and to establish good relationships and connections. In particular, Kerehoma draws attention to the tuakana–teina relationship (the relationship between older and younger siblings) as functioning in the same way as a mentoring-type relationship where a senior person works alongside a junior person (in age, position or experience) in order for the junior to learn.



Section Two: The Electricity Supply Industry in New Zealand

In this section, we provide a brief contextual overview of the Electricity Supply Industry in New Zealand. We begin by providing an overview of the nature of the industry before going on to describe the demographic profile of the workforce and the nature of the labour-market challenges the industry faces. Lastly we describe the nature of training arrangements in the industry.

The Electricity Supply Industry

The Electricity Supply Industry in New Zealand has a number of parts, including generation, transmission, distribution, retail companies, consumers and regulators⁵.

Traditionally, electricity generation and supply was undertaken by a wholly government-owned body, but in 1987 a process of de-regulation began, the consequence of which has been constant change over the past two-and-a-half decades. This has made for an extremely competitive industry, with competition increasingly dependent on service providers being able to develop or source internationally scarce skills and experience.

The national transmission network is currently owned by Transpower, a state-owned enterprise, and consists of 12,000km of high voltage lines connecting generation facilities with distribution networks and a few large industrial consumers. Some 28 distribution companies (some private, some government owned) operate 150,000km of medium and low-voltage lines from exit points on the transmission grid through to around 1.93 million consumers.

Work in the industry is varied, depending on the part of the industry in which employees work.

In the distribution and transmission areas, in which the cohort of trainees followed in this project were employed, the work is recognised as frequently being physically demanding. Its demands include being able to work at heights (including, on the transmission side, being able to climb transmission towers of 50-60 meters in height) and heavy lifting.

While some changes in technology and the perfection of technique can alleviate some of these requirements, strength (particularly upper-body strength), agility and balance are all regarded as necessary for performing the job of a line mechanic. While cable jointing is regarded as being less extreme in its demands than lines work, it still

requires a high level of strength and fitness.

Work in both transmission and distribution may involve travelling long distances to isolated locations, and may need to be done under conditions of urgency (for example, where there is an outage) and in extreme weather conditions. Workers are commonly on call (in case of emergencies), may work long and unsocial hours (early in the morning and late at night), and may need at times to spend a number of days away from their normal location (for example, when working on particular projects). The terrain in which work is being carried out can also be extreme – for example, it may involve uneven ground, on steep gradients, or be underground.

Health and safety issues are central to all parts of the industry, with hazard identification and management being a fundamental part of the job of all employees.

Health and safety measures that are standard in the industry include the use of personal protective equipment (PPE), such as flame retardant overalls (which must be done up, with sleeves rolled down and buttoned at the wrist so that all skin surfaces are covered); prohibitions on the use of fibres other than natural fibres; use of hard hats and safety glasses, boots and gloves, and hi-viz (visibility) vests and sunscreen. Safety also extends to site protection measures that protect members of the public and landowners as well as workers (for example, the physical fencing off of work areas).

Every individual worksite and location is required to have a site safety plan. “Tailgate meetings” are held before work on any job commences, for workers to share information, identify hazards and develop control plans.

⁵ This particular project took place in the transmission and distribution areas.

The Electricity Supply Industry workforce

In 2010, the Electricity Supply Industry⁶ employed 7,720 employees in 129 enterprises. Enterprise size in the industry is bigger than the New Zealand industry average, with 94% of employees working in enterprises of more than 50 employees, and 88% working in enterprises with more than 100 employees.

The demographic profile for the sector, on the basis of figures from the 2006 census, shows other marked differences from the New Zealand workforce as a whole⁷. The industry comprises 70% men, considerably higher than in other industries. While the median age of the workforce, at 41, is only slightly higher than that of other local industries, it has a much higher proportion of staff in the 35-54 year age range, and a much lower proportion in the 15-24 age range. It employs a higher proportion of Māori workers than other industries, but lower proportions of other ethnic minorities.

In terms of qualifications, workers in the Electricity Supply Industry have higher levels of secondary school qualifications than the average for all workers.

In addition, the proportion with no post-school qualification is significantly lower, and 27.5% have a certificate-level qualification (Levels 1-4) in comparison to 16.6% of the general population.

This higher level of qualification is reflected in higher average earnings, with mean earnings considerably higher than for the workforce as a whole⁸.

Across the sector as a whole, around 28% of the workforce are employed in generation, 19% in transmission and 53% in distribution (Hyland-McQueen, 2011). The occupational make-up of the industry varies by sub-sector. In both transmission and distribution around 61-62% of employees are employed in trades occupations, with 8-9% in professional roles and 30% in administration. However, the occupational make-up for the trades group differs between the two sectors.

Table 1: Distribution of trades occupations for transmission and distribution sub-sectors

Sub-group	Transmission (%)	Distribution (%)
System operator	17	13
IT operator	14	11
Linesperson	17	38
Vegetation management	5	4
Cable jointing	2	7
Electrical fitting	16	12
Mechanical fitting	6	5
Technician	16	6
Technical supervision	7	5

Source: Hyland-McQueen (2011)

The industry faces a range of serious challenges in workforce management⁹. An increase in work volume, and an increase in attrition rates from an aging workforce, are resulting in a shortage of labour across the board, but particularly in some specialist and skilled occupations.

Attrition is particularly a problem in professional groupings and amongst older workers who have generally acquired multiple skills (including supervision and project management) over the course of their careers. However, even amongst line mechanics and cable jointers, attrition rates are at 2.8% a year. Hyland McQueen (2011) caution about the need to carefully manage, and promote attention to, the issue of attrition as a key management focus.

The challenge of skill shortages is largely being addressed by recruiting skilled labour from overseas, particularly from South Africa and the Philippines. However, as Hyland McQueen note, migration is somewhat unpredictable, with New Zealand's ability to attract skilled migrants driven by its relative position in both political and economic terms. They suggest it is likely to become more difficult to secure skilled workers in an increasingly contested market.



⁶ ANZSIC 2006 Industry Code D26. Data extracted 25/10/2012 4:02pm from Statistics NZ

⁷ We note that the demographic profile for the industry is likely to have changed somewhat since the 2006 census as a result of immigration trends in the industry.

⁸ At the time of the 2006 census, the mean income for people working in the industry was \$59,700, which was \$20,800 higher than the national mean income of \$38,900. In the year to September 2007, mean earnings from wages and salaries for people in the industry was \$77,810, which was \$33,690 higher than the national mean earnings from wages and salaries of \$44,120. The difference in the 2006 and 2007 figures is likely to reflect differences in measurement rather than real differences in income.

⁹ Note that all figures included in this section are drawn from Hyland McQueen (2011).

There has also been a decrease in the number of trainees being recruited into the industry. This amounts to a total net deficit of 115 trained people each year. For linespeople, volume growth and replacement requirements per year (based on a 10-year average) total 83 (current output is 78) and for cable jointing total 17 (current output 19). McHyland Queen argue the need for companies to take on much larger numbers of people in training and for this higher number to be even higher than might have been considered normal in the past.

These factors mean that the industry as a whole is in a position where it needs to recruit from non-traditional sources of labour, and to create the working conditions where a more diverse group of employees are trained and retained so that they can move into more senior positions in the future.

Training for work in the Electricity Supply Industry

Industry training for the Electricity Supply Industry is provided through the Electricity Supply Industry Training Organisation (ESITO), which sets national standards and qualifications for the industry, coordinates the Modern Apprenticeship programme and develops learning resources. In addition to arranging training delivery and quality assurance of training providers, industry trainers and assessors, ESITO also has a leadership role for the industry in terms of learning and skills issues. In this capacity, it promotes the Electricity Supply Industry as a career choice and develops the industry's skills strategy.

ESITO has in place a comprehensive range of qualifications that cover the skills required to work within the industry. Within that range, there are two dominant industry pathways available to trainees, where they can progress through to a Level 4 certificate either as a line mechanic or a cable jointer.

When an employer and an employee decide that the employee will embark on a qualification, they sign a training agreement that sets out their joint commitment to completing the training. Once this is registered with ESITO, the trainee is allocated a Customer Services Manager (CSM-ESITO field staff member) who works with the trainee to develop a training plan and to ensure that regular progress is made¹⁰. CSMs meet with trainees up to four times a year to check how things are going, provide support and mentoring, and offer feedback on trainees' progress.

ESITO trainees are expected to take responsibility for their own learning, although the extent to which they receive support from their workplaces varies from company to company.

On the job, a supervisor or trade coach (or someone with a similar job title) will normally have overall responsibility for providing the trainee with support and direction, ensuring that trainees get the opportunity to be exposed to and practise the skills needed to complete their qualification, and organising their attendance at block courses. Trainees also complete ESITO Training and Assessment Resources (TARs) and Trainee Workbooks, which cover the content included in a range of unit standards and help the trainee prepare for assessment.

Assessment is undertaken by registered assessors on the job once a trainee has had sufficient exposure to the work that is being assessed and has had enough opportunity to complete the tasks correctly and safely without need of supervision.

In addition to the unit standards that are assessed on the job, each qualification involves attendance at off-job block courses. Before attending block courses, workplaces are required to ensure (based on observations by supervisors) that trainees have had sufficient experience to consistently perform the tasks that are associated with the unit standards to be assessed on the block course by tutors.



¹⁰ In addition to working with trainees, Customer Services Managers also work with employer representatives to identify company-appropriate training solutions.

Section Three: The ESITO Initiative

The driver for the Women in Power initiative emerged from the findings of an earlier piece of work undertaken by ESITO, which looked at how the ITO could improve its responsiveness to Māori, Pacific peoples, migrants and women. This project ran over three years and was funded by the Tertiary Education Commission.

The Responsiveness Project was based on a desire to improve equity of access and outcomes for members of those groups, but was also grounded in the labour market realities of long-term skills pressures that were discussed in the previous section. It sought to identify and develop strategies to respond to barriers to participation in the Electricity Supply Industry experienced by Māori, Pacific peoples, migrants and women. Data collection for the project involved interviews with trainees and in-depth exploratory case studies conducted in three power supply companies. The latter sought to better understand what “success” looked like, based on the fact that the case study companies had above average completion or retention rates for Māori, Pacific peoples, migrants and/or women trainees.

Included in the findings were comments from trainees, supervisors and managers about women in line mechanic roles in the industry.

Overall these revealed deeply entrenched views held by some managers about the capability of women to do the work, male domination of the industry, and women’s overall suitability for employment in particular roles.

Women employees reflected on their experience of having to convince their colleagues and others that they were capable of doing the work, even when they were professionally qualified to do so.

It was apparent that female line mechanic trainee numbers would not increase without significant change in recruitment and workplace practices and culture.

These views were reflected in low numbers of female trainees, with only 42 females enrolled in ESITO trade qualifications out of a total of more than 1270 electricity supply trainees in 2008¹¹. Together with the findings from a scan of the literature, it was evident that a pro-active intervention would be needed if numbers of women in the industry were to be significantly increased.

This resulted in discussions internally within ESITO and externally with the Ministry of Women’s Affairs on the establishment of an initiative that might act as a

“circuit breaker” by tackling attitudes towards women’s employment in the industry. In February 2010, the ESITO Board agreed to establish an initiative based on four complementary components:

1. *The employment of a cohort of female line mechanic Modern Apprentices preferably school leavers or students in transition.*
2. *One employer of choice:* it was originally intended that the project would be an in-depth examination of the dynamics of change within a single organisation, although in the end two companies were involved in the project.
3. *Dedicated female coordination and pastoral care:* the literature suggested that success was more likely if dedicated pastoral support was provided to trainees, and that this person be a woman. For that reason a female ESITO trainee co-ordinator was allocated this role
4. *Full monitoring, support and evaluation by research partners:* it was intended that the research team would maintain ongoing involvement with the project through regular contact with the trainees, the companies involved and ESITO. This was to include support and mentoring for the pastoral support resource.

Following agreement by the ESITO Board, two companies (one in transmission and one in distribution) indicated their interest in taking part in the project, and embarked on a process of recruiting and selecting females for line mechanic and cable jointer qualifications.

These qualifications each take two years to complete. An advertisement (included as Appendix Two) was specifically targeted at women, and was supplemented by written information that outlined what line mechanics did in their jobs, the reasons for ESITO sponsoring a cohort of female trainees, and the requirements of the recruitment and selection process. This information was sent to all local schools; the three polytechnics that undertook pre-trade courses for ESITO; all Work and Income offices in Auckland, Manukau and Northland; and was also promoted at a women’s lifestyle expo that was held in Hamilton. The companies themselves also ran

¹¹ There were 135 women enrolled with ESITO in 2008, with most enrolled in non-trades qualifications. The total proportion of women trainees with the ITO is similar to the rate recorded in 2003 (6% in 2008, 5.7% in 2003). The absolute number of women trainees was lower in 2008 than in 2003 (161 in 2003, 135 in 2008) (Curson, 2003).

open advertisements in Northland and Auckland papers that specifically encouraged women to apply, and also used existing networks such as company newsletters and contacts with local iwi.

This publicity generated quite a degree of interest with 25 women applying at each of the companies.

Further details about the recruitment and selection process are summarised in Section Four of this report.

Three women were recruited at Electrix, all at one site in Mount Wellington. A fourth woman trainee, who had been recruited independently at another Electrix site three months earlier was also invited to join the cohort and did so. All of these trainees were enrolled to complete the line mechanic (Transmission) qualification. At the time of recruitment, all the women were aged either 19 or 20 and had gained a number of credits at school or through a variety of private training establishments, but only one had a full qualification. Their previous work experience had mostly been in unskilled work, including driving fork hoists and diggers, auto electrical work, retail and customer service.

Northpower recruited six women. Initially, three were sited together (East Tamaki), with two at a second site (Whangarei) and a sixth based at a third site (Dargaville). Apart from one trainee who was enrolled in a cable jointer qualification, the rest were enrolled in line mechanic (distribution) qualifications. During the course of the project the trainee based in Dargaville transferred to East Tamaki and switched from doing the line mechanic qualification to the cable jointer qualification. The Northpower trainees were slightly older than the Electrix women, with three trainees in their early 20s, one in her thirties and one in her forties. While one trainee had a degree-level qualification, the credits achieved by the others had mainly been achieved at school and were at Levels 1-3 on the New Zealand Qualifications Framework. Previous employment experience amongst the group was varied. One had mainly worked in hospital administration, another had previously been in the army but had also undertaken a variety of outdoor work, another had aspirations to be a PE teacher but had not achieved that, a fourth had mainly administration experience, and the remaining two had a wide variety of work experiences in different industries.

In both companies, human resources, training and supervisory staff were involved with the training and day-to-day work of trainees. Over the course of the project, all of the women worked in a number of different gangs/crews of three to five people, as they acquired the range of skills needed to complete their qualifications. This saw them working under up to six supervisors, depending on the frequency and reason for crew reassignments.

The project was overseen by a Research Advisory Group made up of representatives from ESITO (both staff and Board members), the Ministry of Women's Affairs, a

Māori advisor, the two companies involved, a polytechnic, another ITO and NZCER. The purpose of the Advisory Group was to:

- provide comment and advice to ESITO on all aspects of the evaluation of the project
- receive and comment on progress reports
- act as a champion for the research and its findings.

The Advisory Group played an active role in the development of the project, and with advice on avenues for further questioning. The industry members of the group became active in additional initiatives to promote the employment of women, including the eventual development of the Ultimit¹² brand, developed to encourage women to apply for trade and technical roles in the electricity supply sector.

The initiative gained a high level of support, not just within ESITO, but also within the EEO Trust, the Ministry of Women's Affairs and amongst government ministers. The project was launched in August 2010, by then-Minister of Women's Affairs Pansy Wong, at a function at Parliament attended by a number of senior industry managers and Board members.

An integral part of the project was research about implementation of the initiative, mainly undertaken through interviews with the trainees and their supervisors, but which also included observations of the trainees in their work environment and in training, and analysis of documentation from the workplace. Regular contact, at three to six monthly intervals, allowed more in-depth relationships to be built up between interviewees and researchers.

This meant both that changes in attitudes and behaviours could be tracked over time, and that a more sophisticated understanding of the workplace dynamics could be built up. In addition, as confidence in the relationship developed between interviewers and interviewees, trust was built and resulted in interviewees becoming more open in revealing their experiences. In addition to discussing their feelings about their experiences in training and at the workplace, this also included for many of the women discussions on events in their personal lives that affected their employment.

A detailed description of the methodology and process for the research is included in Appendix One.

During the course of the research, one resignation occurred at Electrix and two occurred at Northpower. An interview was completed with one of these trainees about the reasons for her resignation, but the researchers were unsuccessful in being able to contact the other two. In addition, one of the trainees at Electrix moved out of line mechanic work when she became pregnant and discontinued her training but remained employed within the company¹³.

¹² See <http://www.ultimit.co.nz>

¹³ One of the Northpower employees also became pregnant towards the end of the project, but after she had completed the requirements for achieving her qualification.

Section Four: Findings

Findings from the research are set out below. They describe both human resource management processes in place within the companies to manage the assimilation of trainees into the workplace (such as recruitment and selection processes, health and safety policies, and performance management), and key themes that emerged from the analysis of interview data and documentation collected over the two years. These themes arose out of the formal and informal interactions that occur between people within workplaces, and make up the “lived experience” that defines workplace culture or “the way things are done around here”.

Workplace culture is made up of events and behaviours that happen in reality, and that may or may not conform to organisational policies. It includes, for example, the expectations of individuals within teams, the tolerance given to breaches of company policies or particular behaviours, the style of management that is promoted and so on.

These key themes are examined in further detail below, although it should be noted that there are considerable overlaps between the different areas. This is particularly the case for issues such as the ability of women to manage the physical demands of the job, which impacts widely on health and safety management, team relationships, performance expectations and workplace culture.

RECRUITMENT, SELECTION AND INDUCTION

As noted above, the trainee positions were widely advertised both by ESITO and the companies themselves, and resulted in 25 applications at each of the companies. This result was interesting in itself, given that both companies noted that general advertising (that is, advertising not specifically targeted at women) had not been previously successful in uncovering suitable women applicants¹⁴.

The two companies operated different processes for selection of the successful trainees. At Northpower, a high proportion of applicants were invited to attend a morning presentation session that provided information about Northpower, the Electricity Supply Industry, the work of a line mechanic, and the project and why Northpower was involved. At the end of this, each applicant met with one of the presenters for an informal discussion around such topics as why she wanted to be a line mechanic, what she thought she would encounter, and whether she had any concerns. This provided a clear indication to Northpower of the women who were really keen to progress and 11 were invited to attend a three-day boot camp in Auckland.

During the boot camp, the women were presented with more detailed information on the work of line mechanics. On the final day they also participated in a simulated pole top rescue, observed by managers and supervisors who would be working with the cohort. This gave these managers the opportunity to talk with the women and become aware of their capabilities, an opportunity that was created to ensure that managers “owned” the selection decisions. Seven of the eleven women attending the boot camp were offered employment and six took up positions (one having failed to meet a critical employment requirement).

At Electrix, the process followed for selection was a standard one used for recruitment of all line mechanic trainees. All 25 applicants were invited to attend an open day with 19 attending, a higher rate of attendance than in previous recruitment rounds¹⁵. In the course of the day applicants participated in a range of assessments, including:

- heights – being taken up in an elevated work platform (EWP) to full height
- dexterity and ability to follow instruction – being placed in a harness a few feet off the ground and being given a series of hand related tasks
- team work – logical problem-solving as a team
- strength – being given instruction in ladder handling and having a go at handling a ladder
- psychometric, numeracy and literacy testing.

Test results were weighted, with mechanical and abstract reasoning having the highest weighting, followed by spatial, numerical and verbal reasoning. The five women who rated the highest then participated in a behaviour-based interview (which also included attitudinal questions) and did a pole climb to test their sensitivity to working at heights. Test results were anonymised, so that the final selection process was on the basis of data and information, without the selection panel knowing which three individuals were being offered (and who subsequently accepted) employment.

¹⁴ At Electrix, a recruitment round six months previously had resulted in 500 applicants, none of whom were women.

¹⁵ In the previous (general) recruitment round, 40 invitations to the open day were issued, with 23 acceptances.

Initial expectations

The initial expectations of both the trainees and supervisors and managers in the companies were very high. All of the trainees had been in employment previously, but for the majority their previous work had been unskilled, and not always permanent. Several trainees had been on a benefit at the time that they were recruited so for the majority, at a basic level, the job offered an opportunity for a regular pay-packet in work that was permanent and relatively secure.

Nevertheless, over and above these basic concerns, all were aware of the opportunity that they were being offered to “better themselves” and gain a skill. For some there was also an attraction in increasing their knowledge, particularly in a subject area that few women have the opportunity to learn about. One of the main appeals of the job for several was the prospect of gaining a qualification, particularly in work with good labour market prospects and reasonable pay rates.

And just appealing to me here is the trade. There is endless demand all over the world ... [supervisor] was saying to us – “I can guarantee to you that by the age of 29 you will own your own house freehold.” And to me, that is amazing – trainee

For many of the trainees, other work and company-related features were important. These included working outside (often contrasted with the lack of appeal of work in an office or a shop), work that was more interesting than customer-service roles, being on the road and seeing different parts of the city or country, and taking on a challenge. Some of the trainees had heard positive things about the companies that had employed them from people that they knew, a factor they took into account when they applied for the job.

Expectations about what it would be like to work in a male-dominated industry were reasonably evenly split between those who expected to enjoy it and did not anticipate any problems, and those who had small anxieties about how their colleagues would react to them, whether they would be able to manage the physical demands of the job, and the possibility of sexual harassment or bullying. Even where these anxieties existed, however, almost all the trainees were excited about taking on the challenge of being a woman in a job that had traditionally been seen as men’s work.

I’ve never seen women out on lines, asked my uncle you sure they want women? I thought it would be a

buzz to be one of the first... be a good buzz to show women can do it too. Women can do anything!

– trainee

Managers and supervisors in the companies also had high expectations. Through the course of the recruitment process, the calibre of the applicants had been seen as being exceptionally high, and of a standard that might challenge some of the male workers.

Their interpersonal skills were seen as being better than average and they had demonstrated teamwork and critical thinking skills. Most importantly, the trainees were perceived as being keen, enthusiastic, engaged with the job and willing to learn.

It was notable that some of the training, supervisory and management staff interviewed at the beginning of the project had previously worked with women line mechanics in different countries and regarded them as being technically very competent. Questions over whether the women were likely to be able to take on the physical demands of the job varied between the two companies, with more reservations being expressed in relation to work in the transmission side of the business. While some managers thought that strength was not an issue, others had reserved their judgement.

I don’t know [how they will manage the heavy work]... probably a bit hard to start. They’re a bit skinny but their muscles will grow... got to give them a chance. I can’t judge right away, because [I] don’t know their spirit and their guts – team leader

The old school guys, a couple of them have said, well, we can see women working in a commercial business and our substation business and so on, but not lines... [but] the physical strength is not really a major in a sense that they have got a lot of equipment that they use. They are not carrying, they use pulley systems and everything to get the gear up the tower. They are not carrying 50kgs on their backs – muscle is no longer an issue – manager¹⁶

At the same time, it was clear from the interviews with managers and supervisors that the employment of women line mechanics was an “event” that was out of the ordinary and had sparked considerable discussion within teams. While there was little outright opposition (and in fact, at least in some teams, reported excitement), there had clearly been discussion about how it might change the dynamics of how teams operated. Topics that had been discussed were largely prosaic – an expectation that the level of swearing might need to decrease, that the jocular and teasing nature of inter-personal relationships might need to be toned down, and a curiosity about how teams

¹⁶ Terminology and job titles differ between the two companies. For the sake of convenience, and in some cases to protect individuals, in this report we use the term “team leader” to describe those with oversight of trainees in the field; “supervisor” to describe those responsible for allocating work to teams or for overseeing training requirements for trainees; and “manager” for those in office-type positions including all HR staff.

¹⁷ Although interviews at the beginning of the project suggested a largely positive attitude towards the employment of women trainees, those conducted at a later stage indicated that the level of opposition was greater than had been revealed to the researchers at the earlier time. At one company, a manager admitted a greater level of resistance from senior operational managers than had been noted at the earlier time, while at the other, a staff member recounted phone calls accusing the company of favouritism and gender bias.

would come to manage the thorny issues of toilets and other female bodily functions.¹⁷

Induction

Once they started work, the trainees at each company participated in induction processes. In both companies, this was a process that went on over a period of time and involved a range of activities. Many of these were about providing new trainees with information that they needed to function on a day-to-day basis and to understand the contribution that their role would make to the operation of the company.

We discuss the history of electricians, give them a good picture of where they fit in – because we are quite a bit bigger than people think we are... And then we cover basic stuff like Kiwisaver, and medical and health insurance, and rules of the company, timesheets and how you fill them out – all sorts of day-to-day stuff

– HR manager

At both companies, induction is critical for introducing new trainees to health and safety issues. This included, for example, allocation of personal protective equipment (PPE) such as boots, overalls, jackets and gloves. More importantly, induction provides an opportunity to begin to train new employees in processes such as first aid, life support, CPR, safe working practices, fire control and environmental protection. Both companies contract to other organisations in the Electricity Supply Industry, and these companies commonly have minimum requirements of the employees of companies that are contracting to them. In some cases this includes a requirement for certification of employees in specific areas prior to them being able to be included as part of an operational team.

In many respects, the induction process continued over the first 3-6 months of the new trainees' employment. In both companies, the first few weeks working in the job were spent around the depot becoming familiar with stores and equipment; and learning the jargon of their reading materials; and starting to understand standard procedures, specifications and regulations.

Eventually, trainees started to be included as part of teams going out on jobs and having the opportunity to undertake hands-on work, although the speed with which this happened varied.

While being included in a team is key to learning the job through having a chance to learn how to perform work tasks, it also involves more subtle elements of being socialised into the culture of the team and the industry.

Learning the technical aspects of the job is discussed in further detail later in this report. For the first few months, this largely involved observation of work being undertaken

by other people in the team, often accompanied by explanations of what was being done by team leaders and supervisors. At the same time, trainees were increasingly asked to complete unskilled and low-risk tasks. There was a marked variation between teams in the length of time taken before trainees were asked to complete "real" or meaningful tasks.

Some were provided with the opportunity to assist more experienced workers almost straight away, while others continued to observe work from afar for several months. This could lead to the undermining of a trainee's confidence from a very early stage in their employment, particularly if they knew that trainees in other teams had the opportunity to undertake hands-on work.

In addition, it slowed down the progress of their training, given that assessment for the qualification is based on demonstrating their ability to complete tasks.

The training's all good, but it depends on which crew you're with because I think that some of them feel like they can't trust us to do stuff. Some are starting to come around to it though

– trainee

As noted, the first few months as part of a team are also important in socialising new trainees into what is expected of them, both in terms of their contribution to the work of the team and the dynamics of team relationships.

It becomes pretty apparent what the mores and norms of the crew are. It gets shaped pretty fast about what you do or don't do and what is expected; what the job is and isn't

– HR manager

These early processes proved to be crucial for establishing expectations on both sides about whether the women trainees were fully accepted and included or not.

In the best cases, they were quickly provided with meaningful and challenging work, performance expectations were clearly established, their performance was assessed without regard to their gender, and teams adjusted themselves to including a woman trainee.

This latter process was not gender blind, but neither was it gender neutral. It involved a process of the team recognising that the new trainee needed to be able to successfully learn the job, and that this might require the team to operate differently, or that individual team members might need to challenge personal assumptions and beliefs. This resulted in a sense of being involved in a

¹⁷ Although interviews at the beginning of the project suggested a largely positive attitude towards the employment of women trainees, those conducted at a later stage indicated that the level of opposition was greater than had been revealed to the researchers at the earlier time. At one company, a manager admitted a greater level of resistance from senior operational managers than had been noted at the earlier time, while at the other, a staff member recounted phone calls accusing the company of favouritism and gender bias.

collective process of adjustment, which had the effect of supporting the trainees to learn new tasks and providing them with the confidence to be able to take on challenges.

In some cases, however, a less positive dynamic was evident, although it is not altogether clear whether this was how all trainees were treated or whether the gender of this particular group of trainees made a difference. As noted, some trainees had great difficulty in getting the chance to get the hands-on experience that they needed to learn work tasks. In addition, some teams preferred work procedures that relied on physical strength rather than use of technique, and did not encourage the women to try different ways of carrying out a task. Where these situations occurred, they tended to result in the trainees' confidence being undermined, and also contributed in some cases to an unspoken concern (both for the trainees themselves and for others within their teams) that the trainees were not "pulling their weight".

The interpersonal aspects of team operations were also not always easy. In many cases, the women were expected to adjust themselves, their conversational styles, and their interest in particular topics of conversation to the team in order to be accepted and included. In a small number of cases, trainees were ignored and excluded, and made to feel invisible in their teams.

Poor team relationships had negative consequences for several of the trainees, in terms of lack of confidence to practice work tasks, depression, low self-esteem and loss of motivation at work.

TRAINING AND LEARNING

While the central interest of the research was an examination of women working in a male dominated industry, for the women themselves and the companies, the central focus was on gaining a qualification. Training of apprentices is a well-established practice in the Electricity Supply Industry, and there are well-established protocols around their role. Responsibility for training is usually shared between a senior person (such as a trade coach), supervisors and team leaders. Generally speaking, the allocation of responsibility for training will be organised as follows:

- A more senior person will take an overview of training and ensure that progress is being made and assessments are being completed. It is this person who will also make sure that trainees are enrolled in block courses at the appropriate time.
- The supervisor will allocate the trainee to teams

that are working on jobs that provide the trainee with the opportunity to progressively gain the skills they need, across the range of skill areas included in the qualification.

- The team leader is responsible for day-to-day hands-on training, in the course of completing work.

A culture of training was evident at both the companies that employed trainees. This involved close relationships with ESITO, a dedicated person to oversee training progression and assessment, awareness amongst supervisors about work that trainees needed to be exposed to in order to build their experience, and processes to ensure that exposures were documented and assessed when necessary. In both companies, good systems were in place for ensuring that trainees gained the experience they needed to successfully complete their training.

Nevertheless, the actual practices that ensured trainees got sufficient practical experience in a timely fashion varied across teams within both organisations.

These issues are explored in further detail below.

Initial training

For the first year that trainees were employed, training largely involved observation of tasks, groundwork, and building their strength to become comfortable with the physical demands of the job. In the course of interviews, supervisors and team leaders frequently expressed their awareness of training needs, including the need to understand the different learning needs of trainees, and the need to expose trainees to a range of different tasks. In line with evidence about the importance of "scaffolding" for successful learning, this commonly involved a sequence of observation from a distance, observation up close, explanations involving theoretical principles, and practice under supervision.

I put them with particular team leaders so that they can learn a lot and where they will be managed well. I put them in the very good ones, basically I wanted them to be permanent there, but things change all the time — supervisor

He's a good team leader, he teaches me everything, and always if I'm next to him while we're doing something... we'll sit down the bottom of the towers with binoculars, looking at what we're doing, draw what we're doing, and then go up so we know what we're doing together. Yeah, it's been good and I have learnt a lot — trainee

I have a very good foreman who is a very good teacher, has a lot of patience. I've done a couple of live pillars, he lets me do a lot and he's a type of person I feel very comfortable with. I can ask him anything, and no

matter how many times I ask him something, he is always patient; he'll give me the answers and explain everything in detail. Because that's me, I want to know why things are being done this way, and the reasoning behind, just the logic behind doing things – trainee

A key to the success of trainees during the first six to twelve months of work was taking the initiative and asking questions. Those trainees who did this were perceived as being interested and enthusiastic and having a future in the industry.

Although some crew leaders took the initiative in ensuring that trainees had exposure to a wide range of work, others left trainees to their own devices if they did not ask to be involved in a range of work tasks. The trainees varied in the extent to which they did this.

If it's something I haven't seen before, I'm usually like "what's that?" Or, "what are you doing?"... I ask enough until I've got the understanding in my head – trainee

Having been yelled at, I got scared to do anything wrong. I just started doing what I was told and keeping my head down. But I'm a bit more confident now – trainee

As noted, in both companies' processes and policies were in place to ensure that trainees made progress in achieving their qualifications. However, a range of factors affected the extent to which these could be put into effect. The nature of the work can restrict the opportunities that trainees have to gain the exposure to the complete range of tasks they need to be able to do. Where work is being conducted under strict time pressures, as in the case of an outage, this can prove to be significant. Similarly, in some cases there are regulatory or contractual restrictions on the work that may be done by unqualified staff.

In other cases, however, there appeared to be a reluctance to invest the time needed for a trainee to take a hands-on approach to their learning, particularly in the early stages of their employment.

It's basically reliant on what work comes up because we don't have a set training matrix in place for them – but that needs to change. [We need] to make sure that the training that we are giving, to not only the trainees but the rest of the staff as well, is relevant to what they require in the field so it's part of their developmental plan as well as their regulatory standard required training – manager

If we do have limited time to do the job, and some jobs take longer than the others. But if we've got

enough time to do stuff then of course we are going to let them do it but you are going to send your most experienced guys to do a job if you've got short time; you are not going to teach someone to do something when you are short of time because it's going to take a bit longer – team leader

The limits on what trainees were able to do in the early stages of training were frustrating for trainees who were keen to be "doing" as well as observing. For some, concerns about this sometimes included a question about whether their gender influenced the extent to which their skills and abilities were trusted.

Hold-ups in the speed with which trainees progressed in their skill development had negative consequences for both trainees and their teams.

Trainees experienced a loss in confidence and motivation that in turn frequently led them to unconsciously withdraw from taking on new challenges. At the same, team leaders became less confident that trainees were able to undertake the work, and experienced their own frustrations about trainees not meeting performance and skill acquisition standards.

[T]hey should be at a stage now where they should be able to go and get the ladder and put it up the pole and know what's needed. ... She's doing a good job of tidying up around them and at the bottom of the pole. I'd like to see her knowing what wire they needed, what tools you want and have them in the bucket – to have that gear ready for the guys to pull up the pole when they are ready for it, and for her to be keen, "I've got my belt on, how about me going up there to do that", and if they have got the time I'd expect her to be given the time to learn properly. So at this stage they should be able to do that, because they are basically half way through now, so from here on they should be able to do more of this work without having to be told exactly what they've got to do and should have the confidence to start doing it

– supervisor

On-going training

As time went on, trainees gained more skill and experience, and were able to work more autonomously with less supervision. This in turn increased their confidence, although all recognised that there were some parts of the job that they enjoyed and were better at than others. They also gained the increased confidence of team leaders and supervisors, who perceived them as adding more value to completing the work of the team.

If the trainee has been here a year, they must know exactly what is going on, you must trust them and not

be looking over their shoulder the whole time to see what they're doing. They must almost be like a full qualified line mechanic – supervisor

It's a cool feeling, I came back to the office and said I'd had a mean day today. [Supervisor] asked, "What did you do today?" and I said I changed an insulator for myself and [team leader] had to supervise me and stay on the arm and not touch anything, and [supervisor] said "That's awesome," I love hearing that – trainee

It was notable that some trainees progressed more quickly in achieving their qualification than others. The considerations bearing on this were complex. Neither company had explicit goals or expectations about the time frames within which training should be completed.

This left trainees and those training them with implicit assumptions, which were influenced by past experiences or comparisons with other trainees. In some cases, this resulted in a mis-match between the ambitions of trainees about their progress and the expectations of their team leaders and supervisors. Where this happened, trainees generally took their lead from team leaders and supervisors in the absence of any reliable knowledge about industry norms, or explicit expectations.

At times, this was misinterpreted by team leaders and supervisors who appeared to assume that trainees should be pro-active in progressing their learning. Several expressed the view that trainees were "hanging back" from training, either because they were less interested or less capable. It may also be the case that the women trainees had a greater fear of failure, and therefore wanted to be more certain about their ability to undertake new tasks or carry out tasks unsupervised.

It appeared, however, that a vicious circle was in place in some instances, with trainees losing confidence because they were not offered the opportunity to practice their skills on a regular basis, resulting in them not pushing themselves forward, but then being perceived as hanging back and not being interested.

In these cases, it is easy for gender to be invoked as an explanation for lack of progress, rather than recognising the need for explicit (and objective) standards for what is expected of trainees and the rate at which they are expected to progress through their training.

I would suggest for the most part it depends on when the prejudices of the female start to come, in particular, if whether the guys feel they are underperforming or not applying themselves, and then they start thinking about that gender issue a bit – supervisor

It is unclear, however, about the extent to which these experiences of the women trainees occurred because they were women or because they were trainees. There appeared to be an underlying and residual attitude amongst some staff that the trainees should "serve their time" and that trainees, being at the bottom of the organisational hierarchy, should expect to unquestioningly accept direction from their team leaders.

In some instances, women trainees expressed the view that they were repeatedly confronted with having to deal with prejudice about their skills and abilities, particularly when they were moved from team to team on a regular basis.

Some trainees reported that even after two years, they were facing difficulty in getting sufficient practice at some tasks that were essential for completion of their qualification. Where a team worked consistently with a trainee over time, and had a good understanding of what they were able to do or not do, this was more likely to result in their skills being progressively developed over time.

As a trainee you get thrown around ... but when I get thrown with other crews it's usually doing stuff that I've already done, it's not really training as such, it's more "you know how to do that, you're coming with us today" – trainee

In terms of the progress made by the trainees in their training, by the end of 2012, two trainees had completed their qualification, and the remainder were well advanced. The possibility that there were gender differences in the satisfaction of trainees with the speed at which they completed their qualification is supported by responses to two questions asked both of the women trainees and the male comparator group in the final stage of data collection. When asked whether they agreed or disagreed with the statement, "I have made good progress in completing my qualification" all of the male trainees agreed, with 44% strongly agreeing. In contrast, only 1 woman strongly agreed, while 3 agreed and 2 being neutral or disagreeing.

Similarly 89% of male trainees, but only 67% of the women, agreed that it had been easy to get the work experiences that they needed to complete their qualifications.

All the trainees, however, were positive about their decision to enter into the industry, looked forward to undergoing further training, and saw themselves as having a future in the industry in some capacity.

Some were content to continue in the same role (either as a line mechanic or a cable joiner) while others were interested in exploring different parts of the industry, in specialist jobs or working for ESITO to support other trainees.

I've been looking around at other jobs in the industry and the technical side really interests me. I'm staying here until I finish this qualification, but then I think I'd like to look around and see if I can get a (technical) job – trainee

I'd like to train as an electrician, I'd like to do that, but I reckon do what [ESITO trainee co-ordinator] and [company trainee co-ordinator] do. I know I'd do a damn good, better job than them. I want to stay [in the industry], but it's just to find myself here – trainee

HEALTH AND SAFETY

As noted earlier, health and safety issues are central in the Electricity Supply Industry. This occurs both as a result of the work inherently involving a high degree of risk, but also because of the conditions under which work is carried out. Keeping workers safe is accorded a high priority in both the companies participating in the project, and considerable investment is made in the effective management of well-established health and safety systems. Nevertheless, the employment of women raised some new issues for the companies – not only in terms of safety, but also in terms of systems to address potential health hazards.

Health and safety management systems

Both companies have sophisticated health and safety systems and all staff are fully trained in hazard identification and management, with regular refresher training taking place. Prescribed procedures are in place for ensuring the safety of workers, landowners and the public at each job that is carried out. Tailgate briefings are held before the start of each job.

From a very early stage in their employment, managers and supervisors at one of the companies suggested that female trainees took hazard identification and safety management more seriously than males, although at the other company few differences were observed.

The women's approach to health and safety was described as involving better

identification of risk, being more focussed on detail, and ensuring that proper procedures were followed. Most of the trainees saw themselves as being more conscious of safety than their colleagues.

I started filling out [the job pack] and I was looking around in the truck – we didn't have a first aid kit, a fire extinguisher, rescue kits, spill kit, hazard sign, demarcation, drop zone, access ladder – we had nothing. If anything happened while we were working with two live circuits, I'd have to sit down the bottom of the tower there watching those guys climb. [So I rang for advice and talked to] the project manager, and he said, "Can the job," so I said, "Boys get down, let's get out of here." We came back to the office, we all got interviewed... but nothing happened – trainee

I know for a fact that women are more safe to work around than guys – they don't tend to worry about it. I look at a thing and I suss it out first, guys will rush into it... it doesn't faze them, danger doesn't faze them, it's a part of their make up, but it's not something that I will ever do myself... I think that's one thing all women have, and it's just natural instinct to be safety conscious – trainee

Hazard management and the work environment

While health and safety is taken extremely seriously in both companies, nevertheless the employment of a cohort of women raised issues for the companies that needed to be considered.

Most issues were not entirely new to the companies, but had been resolved on a case-by-case basis when women had been employed on previous occasions.

One issue arose from the fact that some of the trainees were smaller in stature and build than other employees in the industry, which posed problems sourcing safety equipment (such as boots and overalls) from suppliers. In some cases trainees could "make do", but in others, not having proper sizes could pose safety risks. For example, safety gloves (needed for holding hand lines and working with karabiners) could pose a safety risk if they are too large. In others, design features (including the "all-in-one" design for overalls that are standard in the industry) can cause difficulties for women that are not experienced by men.

In one of the companies, an issue arose around the requirement for all clothing worn under overalls to be made of 100% cotton. While most of the male workers wore jeans, the women found this uncomfortable and had to find innovative solutions.

A particular problem arose around the development of guidelines around wearing underwire bras while working on live wires.

Health and safety issues were frequently very difficult for the women to deal with, as they involved extremely personal issues that they did not feel comfortable discussing with their male colleagues. How to manage their periods while working in isolated locations or up a pole and while wearing overalls was generally something that they worked out on their own and was a topic that was largely only discussed with other women. Access to toilets was a subject that was discussed more openly, but policies (such as taking a portaloos to a job site where the site did not allow easy access to a public toilet) were frequently observed in the breach. Despite company policies that frowned on urinating in public or open-air spaces, this practice is common amongst male employees and can be done in relative privacy. The difficulties associated with women doing this meant that they were more likely to have to stop work and drive some way to a public toilet, making their actions and the time taken, much more publicly visible. Over time, however, they tended to become much more pragmatic in their responses and found ways of managing in line with their personal senses of privacy.

*You have two pockets, and in one you carry two snap-lock bags ... one for clean and one for dirty. And then you get those little packets of baby wipes. So you can just go in the bush, do your business and then come back. ... You might see them up on the tower and they might look down, but all you need to say is, "F***** look at the other side! I'm busy!"* – trainee

I just open the door on the truck (and go behind there). Really I don't care if they see anything – they all have wives and kids, they know what it looks like – trainee

While toilet issues were generally resolved with relative ease, for several women they caused major difficulties as a result of their being susceptible to repeated urinary tract infections (UTIs). Given that UTIs are significantly more common in women than in men, and result in increased frequency of urination, the women for whom this was an issue had real difficulties managing while out on job sites.

Another key issue relates to reproductive health and exposure to electricity, with particular risks around the health of the unborn baby as well as the health of the women themselves. During the course of the project, two of the trainees became pregnant, but neither company had existing guidelines on what was

expected of pregnant women in terms of notifying the company about their pregnancy, nor how it was expected that the company would respond.

As noted earlier, one of the trainees transferred into administration work, and remained there through a second pregnancy. The second trainee did not immediately inform the company of her pregnancy, in order to be able to complete her training – a fact that the company was not entirely comfortable with. However, her supervisor was aware and was careful to only allocate work that was safe for her. She has since transferred to office work until she has the baby.

I didn't tell them and when they found out they were like "oh my gosh you've been doing this!" – because when I told them they were like, "Congratulations how many weeks are you?" and I was 20 weeks. They couldn't believe how long I had stuck it out for but it was just so I could get my ticket – trainee

Strength and fatigue Issues

By far the most complex and difficult health and safety issue associated with the women trainees related to the physical demands of the job, and the conditions under which work was carried out. Day-to-day work, for example, can include digging trenches, carrying heavy equipment, and throwing ladders (on to poles). Work may be carried out in remote locations, and may need to be reached on foot over rough terrain, and (particularly in the event of unplanned outages) may be undertaken in extreme weather conditions.

In most cases, trainees came to enjoy their increased fitness and strength, and took steps themselves to improve their health and wellbeing. These included going to the gym, eating more healthily and giving up smoking and alcohol. In addition, one of the companies set up a "line-fit" programme, to build the core strength of all line mechanics and counter the incidence of muscular-skeletal disorders.

Having female workers in a job that involves intense physical demands raises health and safety issues for both men and women. There is no doubt that physical demands constitute a workplace hazard, and that various aspects of the work and worker fatigue both need to be carefully managed. Managers at both companies argued that physical strength to do the job was less important than it had been previously, and that technique was more critical. However, in the context of a highly competitive industry

operating within tight time frames to get work completed, strength is perceived within teams as necessary to meet deadlines. Thus workers who are stronger may be exposed to a lower level of risk from strain or fatigue.

In the early stages of the project at both companies, there were instances where male workers protected the women from having to perform some of the more physical tasks. Over time, it was recognised that this did no-one any favours, particularly where this was perceived negatively by other team members.

If you go up to [location], they baby the girls... They keep saying, "Don't let her do that, it's too hard." The girls also fall into that same slot, which is not what you want, then you'll get guys saying, "I can't take her if she can't lift a ladder" and "I can't use her because of this" – she's got to be able to get in there and get the business done – supervisor

All of the women trainees recognised that they needed to be able to carry out all aspects of the job including the physical ones, and were frequently on the look-out for techniques that allowed them to do the job without necessarily resorting to brute strength. However, they also recognised that they needed to be careful of their own personal safety. This sometimes necessitated asking for assistance, or refusing to undertake work that they considered put them at personal risk, for example, of back injury.

...the ladder is probably one of the heaviest things that you would carry, I have heard people say that they are close to 30kgs. I, personally, won't put my back out. I always say, "I'm not putting my back out for a job." – trainee

Some of the social aspects of the effect of strength on the trainees' ability to do the job are discussed below in the sub-sections on team relationships and workplace culture. However, the health and safety aspects involved some complex dynamics that were extremely difficult to manage. Examples were provided of situations in which individual women had been reluctant to undertake particular tasks, which they believed were beyond their physical capabilities and therefore unsafe. While there was never any suggestion that they were pressured into doing the work anyway, this could potentially result in the risk of fatigue for other members of the team.

In both companies there were individuals who argued that women could not adequately perform some aspects of the work, resulting in uneven workloads for other team members and potential health and safety hazards.

They can't do the heavy stuff – they can do some of it, but not all of it like the boys. They are good on the ground, but you can't always have them there. The

work ends up being unbalanced – for example, if there is a five person crew, and if you put one of the girls in the crew, that would leave four guys having to climb all week and that becomes a health and safety issue – supervisor

Only in a few instances were explicitly negative comments made, but in some cases trainees came to perceive that at times colleagues had a preference for not including them in teams because of the physical demands. This was frequently not a blanket reluctance but one that occurred according to the demands of a particular job (for example, work on 440v transmission towers), or the constraints of tight time pressure (as in the case of an outage).

The physical thing has always been a barrier. It's not like a little screwdriver. It's hard for some of the guys... We can't carry out [the work] in a simpler way, there's only one way to do it. It'll be hard for them because it's hard for us... If we struggle, then everyone will struggle but they have a disadvantage of not having the strength – team leader

Some of the social aspects of physical strength as a valued attribute of line mechanics are dealt with in the next section.

TEAM RELATIONSHIPS

Good team relationships are critical in carrying out work in the Electricity Supply Industry for a range of reasons. Most significantly, the lives of team members are literally in each others' hands. To manage this risk, it is critical that everyone understands their role and communicates clearly. Other aspects of the work also make good team relationships important, including the fact that team members are frequently working in close physical proximity, that other team members may be the only people that an individual sees or talks to all day, and the need for work to be completed in a timely manner: this all requires that everyone pull their weight in the work of the team.

Being "a good team member" is highly valued in the industry. From the interviews that were completed, it is evident that the qualities that contribute to an individual being assessed as a good team member can be summarised as "getting stuck in".

Components of this behaviour include thinking ahead about what equipment might be needed and having this ready in a timely manner, taking the initiative, offering to undertake tasks or assisting others to undertake tasks, listening to more experienced workers, having respect for their knowledge and skill, and performing tasks when instructed without question.

Building Teams

From an early stage in the project, it was evident that supervisors (who allocate work to teams) had thought carefully about how to incorporate the women trainees into work crews. This involved consideration not only of the skills the trainees needed to learn, but also about which team leaders would deal best with them, and which crews would be most responsive and welcoming to women trainees. In most cases it was also evident that supervisors understood (although not all team leaders did) that this would require teams to change their existing methods of operating. There was also, however, an unstated expectation that new team members would themselves take the initiative and play an active role in becoming part of them team.

Behaviours that were expected of trainees included volunteering to perform manual labour, asking questions, and taking the initiative in asking to learn new tasks. These expectations were not always explicit, and the women trainees often had to work them out for themselves over a period of time.

For the first four weeks at the start, I'm sussing them out and figuring where should they be in the crew. I'm making them aware of what is happening, and they do a lot of observation. I say to them, "These are your three jobs – if you do nothing else, you've got to do those each day." When they are ready [to do other things] they can ask to have a turn. I want to see their motivation to want to get in, not just waiting till end of four weeks. But the whole crew has to adjust and realign

– team leader

Yeah, they were, it took about a month before they let me do things and I don't know if it's because of knowledge or [because I'm female], but I had to ask to do it and once they could see that I could do it and they said, 'you can pick up pretty fast', and I said, "Yeah, I'm not stupid. I need to physically do it to understand and if I have a problem I'll always ask"

– trainee

An issue that arose in both companies, particularly during the first year of the project, was the extent to which women were treated as “different” to other team members. Both companies were keen for the women to be treated exactly as other trainees would be, but to some extent, interpersonal dynamics within teams and ingrained views on appropriate behaviour involved challenges for some individuals, who were less than supportive of the women. In some cases, the trainees were subjected to negative comments that undermined their position (such as being told outright that line work was not a job for

a woman) or being subject to arbitrary rules based on gender (for example, one trainee was instructed that her overalls always had to be done up, to avoid “distracting” men in the yard).

In some teams, the response to the inclusion of women was to “protect” them from carrying out some aspects of the work, particularly where this was heavy or dirty. While often done with good intentions, it commonly backfired – for two reasons. First, it meant that the women did not get enough opportunities to gain the skills and experience they needed in order to complete some unit standards in a timely fashion or to progressively build their strength in order to be able to perform some of the more difficult aspects of the work. Second, over time it resulted in resentment amongst other team members, and a perception amongst some that they were a “drag” on the team.

I think at first the guys didn't know what to expect from this, they stepped back and let the girls get away with not doing the work. I think since I have given the team leaders and their leading hands a bit of a helping hand in regards to what has to happen, they have now... realised that they cannot be treated "special", they are like any other trainee. I do believe that they are still a little bit soft on them, because they are girls, but they are expected to do the work now

– supervisor

The interpersonal dynamics between men and women needed to be negotiated quite carefully in teams, and created challenges for the companies as well as individuals. In one company, a relationship developed between a trainee and one of the team leaders, which necessitated new thinking about appropriate ways of managing this. A number of individuals across both companies commented that the “jokey” relationship that occurred amongst team members sometimes took on a different flavour when women were part of it. In addition, in both companies there were pockets of people from different cultures, some of which have their own cultural norms about the relationships between men and women, and the type of behaviour that is appropriate between the sexes.

Before I start with [her], I tell her you work with men: we don't count you as a lady but a man. If you think about [being a] lady you can't do it. Sometimes the men with ladies feel... They bump each other. When you come onto the job site, you [must] forget about that. You do the job... Sometimes they work near my head, but I don't think of anything bad... We will be working together, our bodies may be touching together but I don't feel shame. Sometimes [the boys] they can get scared but I said don't think that.

– team leader

On-going team relationships

As noted above, where trainees remained in the same team, this allowed more settled work relationships to develop, for work patterns to become established and for work to be completely more quickly.

It's pretty good, I think we have actually become pretty close. We work well together as a team and because I've been with them for a few months, when we go out to a job, I know exactly what they're going to need for a job and I do think they appreciate it because it's not like they have to ask all the time. – trainee

After some initial teething problems in some teams in working through how the inclusion of women would affect interpersonal relationships, team members became much more used to working with each other. Some teams became extremely close, and in some cases extended to social relationships and support outside of work.

One trainee commented on how she hadn't realised about how much she cared about the people in her team until a situation occurred which involved considerable danger to a team member – it had really shaken her. At the same time, good relationships appeared to rely on individual personalities, with a premium being placed on relatively out-going and confident personalities, and people who would “fit in” with the existing team. On the other hand, those with less confidence, more subdued personalities or quieter voices could sometimes be left behind. In one of the observations carried out by a member of the research team in an off-job training situation, a male trainee with a louder voice who was giving incorrect answers constantly drowned out a female trainee who was giving correct answers to questions. Unfortunately, these traits may operate to the disadvantage of some woman trainees and may be misinterpreted by team leaders and supervisors.

I don't ask a lot of questions, I am a quiet person. I would rather take my time and try and work it out for myself than asking. – trainee

They are confusing my quiet nature with me being unenthusiastic, which I have said it's not. – trainee

At the same time, some team leaders expressed concerned about behaviour by trainees that they perceived as being overly familiar. At times, it appeared that although women were expected to engage in the light-hearted banter that was common in teams, they also risked this being interpreted as being flirtatious. When asked about this apparent contradiction, team leaders drew attention to the need for trainees to act respectfully towards trained and qualified line mechanics, and take the job seriously

– rather than gender-based interpretations of behaviour being the issue. It does draw attention, however, to the fact that the behaviours expected of women and men in teams may be interpreted differently, and that women may be expected to meet different standards of behaviour in order to be accepted.

*She's pretty good really, she deals with a lot of s**t – everyday stuff – like guy talk and that, because when we first got a woman trainee it was like, “How do you treat her?” But the boys [now] treat her like one of the boys and that's all she expects and she fits in well and she gives it back, so she's coming along quite well – she's as bad as we are.* – team leader

[The trainee] assimilated very quickly and very well – she had the respect of the men a lot sooner, she got involved, she showed the desire to be a mechanic and the drive to succeed. – supervisor

Other qualities that were highly valued for trainees in teams were an attitude of “getting stuck in” and “pulling your weight”, asking questions and a willingness to learn. Maturity was also perceived as an issue that affected the relative success of the trainees in how they were seen as an effective team member, and in particular in taking a professional approach to the job.

Trainees who were slightly older tended to have a greater degree of confidence in dealing with issues as they arose, and found it easier to gain respect from workmates. They were also perceived by team leaders and supervisors as being more settled, and being more motivated to complete their training and treat the work seriously.

I think also those older are better... Women and the guys too. Once they're in their late 20's they have the mindset that they need a career and they're keen. The ones from school are in the “I don't care” mood.

– supervisor

The success of on-going relationships and the extent to which women became fully assimilated into the team appeared to depend on the extent to which trainees got to work regularly in one team or not.

Working consistently with the same group of people assisted trainees in establishing good team relationships and consistent expectations. Where this did not happen, trainees suggested that they were repeatedly confronted with having to deal with prejudice about their skills and abilities. A general attitude of “women can't do the job” was replaced only when a team worked consistently with

a trainee over time, and had a good understanding of what they were able to do or not do.

Team relationships were also affected by the extent to which the women trainees were able to fully meet the physical demands of the work.

The hard physical nature of the work, and the suitability of women in line mechanic positions, continued to be commented on throughout the project, and influenced the extent to which women were valued in contributing to effective team functioning. A perceived lack of strength for completing some aspects of heavier jobs (for example, maintenance work on 200v and 440v towers in transmission) was put forward in both companies as contributing to a mixed view.

Although managers were adamant that strength was less important than technique in undertaking the work, some supervisors and team leaders reported some resistance to including female trainees on some particularly difficult jobs.

In both companies, there were individuals who argued that women could not adequately perform some aspects of the work, resulting in uneven workloads for other team members, and disrupting a sense of good team functioning.

The girls are interested in work... and maybe 40% they can do but the rest they can't. It's not about how they think but the physical thing. They can't do some heavy stuff [like] change steel... 60% they can't do.

– team leader

From what I've observed and what was said to me, I'd suggest in some areas that it was reasonably supportive and in other areas it was not that supportive, and I think it's like a vicious circle; if people feel you are under performing your support

base slowly erodes, and I think she sort of tried, from what I observed she tended to try but she struggled; and if you've got a team of three men, and really you've got two-and-a-half, it means the other two have to pick up the slack – the resentment starts to build. And it's the training period that's often the hardest, people always size you up, they'll work out your value and if your value is low they'll treat you like that.

– supervisor

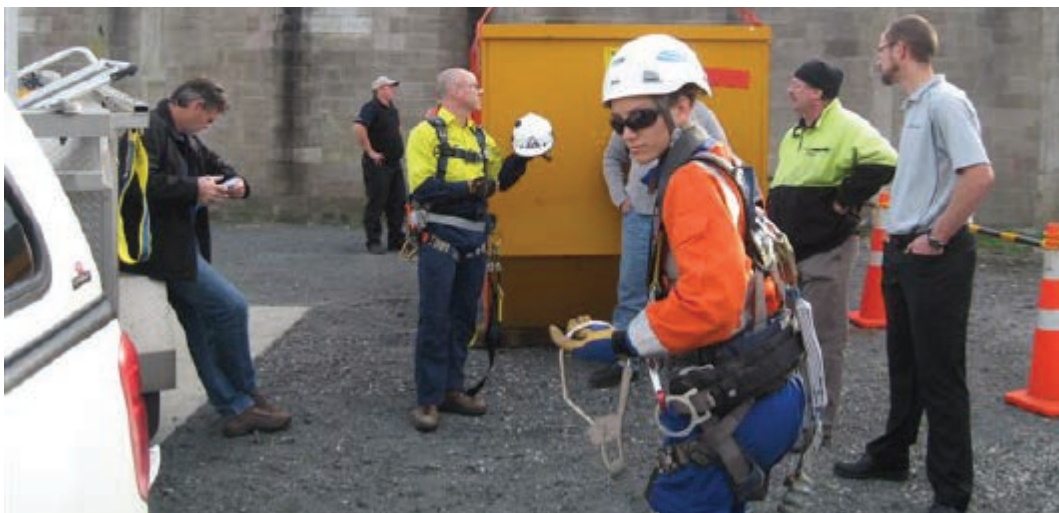
In both companies, it was evident that there were pockets of continuing resistance to the employment of women in line mechanic roles. While general management had been very supportive of change, on the ground, women continued to face negative perceptions. Trainees varied in how they managed this continuing resistance – some confronted it head on, while the response of others was to “put their head down” and ignore it.

There was this guy from [another location] and he was just carrying some blocks of wood over to the machines and I said I would grab the rest and he said, “No no it's too heavy for you”, so I stood there and I watched him carry them and then he came over to me and said, “Can you help me with this machine”, and I said, “I can't it's too heavy”... If you are going to baby me, I'll be a baby.

– trainee

The survey completed by both male and female trainees at the end of the project lends some weight to the view that women may face barriers to full assimilation into teams.

When asked whether they agreed or disagreed with the statements “I feel valued as an individual in my team” and “in my team I am listened to when I make suggestions”, male trainees were more likely to agree and agree strongly, while women trainees were more likely to neither agree nor disagree.



MANAGERS, MENTORS AND OUTSIDE SUPPORT

The availability of support throughout training was important for all the trainees, whether this had come from people within the workplace, or family outside.

Workplace support

One of the key findings to have come out of the research is the importance of good managers and mentors for women working in non-traditional occupations.

A good team leader or supervisor was essential for ensuring that trainees got the opportunity to progressively gain skills over time in the range of tasks that they needed to be experienced in. In most cases trainees had strong views around which team leaders and supervisors they preferred working with. This usually was based on those people who explained things and provided them with the opportunity for hands-on practice.

From the start, the guys were wary about taking us and they weren't sure if we were capable. After three months, I still had to stand there and learn and when I say to them, "Can I do it?", they would ask, "Are you sure?". [Team leader] was the only one that said to get in there and do it, and said I wouldn't know unless I touched it. That's the biggest difference and I think after having us both in there... They realise we need to get in there and they can't baby us. – trainee

Being put with [team leader] [has helped my learning]. He lets you do it. He explains, watches and then will stand back and let you do it. It's been good and given me the chance whereas some guys would not let me. – trainee

A good mentor played a different role, and mostly acted as a sounding board and a trusted advisor. All of the trainees were new to the industry and frequently felt uncertain about some of the situations in which they found themselves. A mentor who knew the industry was able to guide trainees' expectations around their own and others' behaviours.

While the project had not initially included the use of workplace-based mentors, these proved to be important for several trainees. In the main, they consisted of people outside the immediate day-to-day working relationships of trainees.

They were people who had experience in the industry, were trusted by trainees, and who they went to when they had questions or were facing situations in which they needed advice. They also played a role in being a person

who bolstered the trainees' confidence when they were feeling uncertain and who provided suggestions about ways of behaving or responding to situations, and on future career possibilities. The obvious value of mentoring relationships for the trainees has resulted in both companies thinking about how these might be developed more systematically in future.

I sat down with [name] one day and he said he had a phone call from [another depot] asking if I might be interested in going there... and he said, "You know that everyone talks about you, praises and all come out for you." He said I should think about it. – trainee

We just talk to him. It's not really like he's even our guy or has anything to do with where we go. But he has our back. He hasn't said, you know, "Come to me". But he's there for us. – trainee

Support from relationships with other trainees in the cohort was also important for some (but not all) of the women in addressing issues that faced them through the training.

In some cases, friendships developed between trainees that were nurtured outside of work, while in other cases the nature of the relationship was focussed more on reducing the sense of isolation experienced on a day-to-day basis. This included having "girl time" with someone who understood what trainees did for a job, being able to discuss strategies for personal hygiene issues, and most importantly being able to share stories and experiences that helped them feel less isolated. Knowing about other women who had completed their training helped the trainees to find out about their experiences and get tips.

I just want to sing the MJ [Michael Jackson] song, "You are not alone". I love having her here – I can talk to her and she understands where I'm coming from. – trainee

*There's been a couple of days where one of us is going through some s**t and we'll text each other and talk... So we've definitely supported each other and also kept confidential what each other has said... If I was the only female I think I would have struggled a lot more.* – trainee

*I'd cry if [she] resigned. I've got [a partner] but it's easier having the both of us here, having someone who is going through the same s**t as you.* – trainee

It is, however, important to note that not all trainees had the same need for support from others in the cohort.

It's not important to me, I'm here to do a job. Like, yeah, we catch up every now and then, but yeah, I just do my job like I'm expected to. – trainee

Support outside of work

The support of family and friends was also critical for several of the trainees, and was recognised as important by managers as well. For some, this was crucial when the trainees were experiencing difficulties, including difficult interpersonal relationships at work, not getting the training they needed, or working long hours.

My whole family support me in what I do because my family know I'm not the typical or normal girl so they all think this sort of job suits me, being outdoors, being boyish – so they all support me in what I do. Like when I finished my ticket, I texted them all and they all rang me – they were so happy. They always skite about me like, "She works for [company] and she's a lineman now"

– trainee

The support at home is important and that's where some of it falls over. If you don't have that support at home, it's hard

– trainee

All of the trainees who had partners talked at times of the importance of their support. Trainees needed the understanding of partners about the way they adapted to and managed their work relationships. This at times was testing for trainees' partners as they also adjusted to what they saw as the "familiar behaviour" of work colleagues to their female partners and the nature of some of the work "banter" that came home.

The trainees observed the interest their friends showed in knowing about their jobs and the support they provided around their jobs being different and unusual for women. The women with family members in the industry also generally received their support and encouragement.



PERFORMANCE EXPECTATIONS AND MANAGEMENT

Training and employment did not always proceed in line with the expectations that trainees and employers had when the trainees were newly employed. As is normal in any workplace and in both companies, difficulties required discussion around performance expectations and management. Of particular interest for the research is the extent to which these were influenced by gender and how these were managed by the companies. Two particular issues arose – the extent to which general performance expectations needed to be met by all employees, and the responses of companies to perceived non-performance.

Performance expectations

As noted earlier, although expectations of the trainees' performance were high from the start of the project, these were not always explicit, and relied on trainees, their team leaders and supervisors and the company itself, having shared understandings of what behaviours were expected of trainees and how rapidly they should progress in their training. In the absence of these understandings at a team level, confusion sometimes arose.

Trainees were left in the dark, and some teams and team members were uncertain as to whether they should expect women trainees to meet exactly the same standards as was expected of male trainees or whether to apply a different standard because of their gender.

This issue was seen most clearly in relation to the physical demands of the job; whether a minimum standard of physical strength is necessary to meet performance expectations; and whether the requirements for physical strength are reasonable for either men or women. In general, managers at both companies argued that physical strength to do the job was less important than it had been previously, and that technique was more critical. From an early stage, however, physical strength and its relative importance proved to be a deciding factor in assessments of whether women could meet field-based expectations of job performance.

While the vast majority of tasks to be completed were well within the physical capacity of trainees, some tasks on some jobs (particularly in transmission) were argued to have higher physical requirements.

Over the course of the project, the question of the extent to which strength is a necessary condition for the job (particularly for lines work) continued to be actively debated by the trainees themselves and the teams in which they were part. These debates were not black and white.

On the one hand, managers argued in favour of technique and work organisation as an alternative to a reliance on strength to get work done. From the perspective of teams however, time and budget constraints, and pressures to improve productivity, placed them in a position where they did not feel that they had the opportunity to try out new methods of working, and commonly relied on strength and speed as a means of meeting deadlines and performance expectations.

They expected the women trainees to be able to meet these as well, and if they were not able to, interpreted this as not meeting performance standards. The women themselves were of the view that there were only a small number of tasks that they were not able to complete without either having assistance or compromising their personal health and safety, but they were conscious of the fact that people in their teams had less sympathetic views of their performance.

Females struggling with physical – one [trainee's] aptitude is up there, but physical below average. Expect to see improvement with both. Over a year, a guy streaks ahead as built differently. Have couple of guys and one female trainee keeping up, other a little behind. She'll get to ok level. – team leader

My crew are usually pretty good. I'll go to lift something (and can't) and I'll ask them "can you do that" and they are usually pretty good, but if they give me grief, I'd just be like I'm not doing it. I'm not going to try because they intimidate me, no way. – trainee

The heat with which these issues were discussed within teams draws attention to the need for companies to be explicit about what is expected of employees in terms of performance. Being clear about this would assist team leaders and supervisors with managing all team members, not just women. One supervisor suggested that the industry had a macho workplace culture that placed emphasis on "being tough" and that some of the less competent or strong male workers were also complained about.

The trainees themselves, however, had at times had their confidence undermined by being made to feel that they did not come up to scratch, particularly when the question of them transferring to less demanding work had been openly discussed with them. In several cases, this had been done in such a way as to very explicitly draw on gender as a reason for the job being unsuitable for them.

I said to her, if you're planning to have a baby in this kind of job you might struggle, and if you jump in to the distribution it would be easier for you – it's the same company and same line of work but much easier to handle. – supervisor

I don't really like to work with him much and that's because he [thinks he] knows everything. Like what's good for you and what's not good for a lady in this job. It's like, what are you talking about mate – I'm the first one [woman] you've come across? – trainee

Facing obstacles

As the novelty of having women trainees wore off over time, some difficulties emerged both for individual women and for people they were working with. In some cases, these involved physical stress and fatigue, difficulties in negotiating interpersonal relationships within the team, some on-going antagonism to the employment of women, and the job not meeting initial expectations.

Having solid sources of support, within and outside the workplace together with developing strategies for maintaining their resilience, were crucial to the women being able to remain in their jobs. However, in some cases obstacles were faced which needed to be worked through, not always with ideal outcomes.

There were three resignations during the course of the project, several instances in which trainee performance needed to be managed in some way, and a small number of instances of antagonistic behaviour that amounted to workplace bullying.

Three women in the cohort resigned from their jobs and terminated their training agreements. We were unable to contact two of these women, but an interview with one indicated that her reasons for leaving were not associated with any issues related to gender. In addition, as noted earlier, two women became pregnant during the course of the research, one of whom was close to completion of her qualification while the other transferred to administrative duties.

The extent to which performance issues and how they were managed were influenced by the gender of the trainees is difficult to disentangle from general life

events (such as birth and death) and the normal range of performance that could be expected in most workplaces. To some extent, gender has come to influence how the companies think about how “good performance” is defined and exhibited, and how this is influenced by traditional male norms of behaviour. However, in at least one case, performance issues were perceived as being exacerbated by the fact that a trainee felt “protected” by being part of the female cohort.

Where performance problems occurred, the companies undertook some internal reflection on the extent to which they themselves contributed to the problem by not making expectations (of behaviour and of the conditions under which trainees would be working) explicit with the women, or the extent to which they had provided them with sufficient support in the face of continuing resistance to their employment by some staff. At the same time, the companies have both taken an active approach to addressing performance issues where this was needed.

One of the interesting ones is that I did performance appraisals this year – it's the first time it's been done with the field staff – and I was a bit brutally honest with everyone in respect to their performance and what surprised me was what came back was the guys and the girls were appreciative of that, and [she] actually said to me, “It's nice to know where I'm going wrong because that's where I can focus to fix.” ... sometimes ... people only do things wrong ... because they don't know that they are doing it wrong until someone tells them. – supervisor

In both companies, instances occurred where behaviour towards the women trainees went past a generalised resistance to the employment of women, and fell well within the bounds of workplace bullying.

In one instance, this involved a female trainee being excluded by the team to which she was allocated, and in another it involved a senior manager engaging in excessively intimidating behaviour, in the name of managing trainee performance. It is notable that the definition of workplace hazards contained in the Health and Safety in Employment Act includes, “a situation

where a person's behaviour may be an actual or potential cause or source of harm". In both cases, the companies dealt with the offending behaviour appropriately through management intervention.

This does however draw attention to the fact that where an existing workforce is being expected to include members who are different from those who they are used to working with, that expectations about how newcomers are to be treated could usefully be made explicit.

LIFE OUTSIDE WORK

The focus of this report has largely been on the experience of the trainees in their work settings, but at the same time that they were engaged in completing their qualifications, they were also managing their lives. Some started or finished relationships, bought a home, experienced the death of family members and friends, or had illnesses themselves. In the main, trainees reported that they had good support in managing these situations, both from the companies and from their teams.

[Supervisor] is honest, helpful and caring – all the guys care about that in the end, knowing that your boss cares about you. She's really caring about those things and when people pass away, they're there to help with families. When my children were sick she was there. Like the guys, they're like that on the field and we all care about each other. – trainee

Managing relationships and family was a challenge for some of the trainees. Issues that arose included long hours of work and working at locations away from family; family perceptions about women working in a non-traditional job; and managing domestic tasks such as cooking, cleaning and childcare.

Yes, family, probably because I'm the mother – kids tend to go more to the mother [with sickness, etc], because I've taken a lot of days off for my son – he can be quite sickly and sometimes I feel my work get a bit annoyed but in saying that they don't. ... but one thing good is [the company] is really family friendly, so they know family comes first. – trainee

My husband struggles because I love my job so much. When you're married it's a struggle for family. My children miss me because I work a lot. But my family is happy for what I have achieved Our father-in-law came down to help but it didn't work out. It's missing [the children] that gets me and the quality time you can't get back. My boss says don't forget your family and that's what I need to focus on.

– trainee

As noted, two of the trainees became pregnant during the course of their training. Both had felt supported by the companies in managing potential tensions between their pregnancies and work.

While men and women in the industry are working the same hours, the impact on women may be greater than that for men.

The final questionnaire completed by both the women trainees and the male comparator group asked whether their work interfered with the time the trainee had available to spend with family and friends. Women were considerably more likely to agree with these statements, the only exceptions being where friends or members of their family were also employed within the industry. In some cases, close relationships that had been forged at work extended outside of the workplace.

I kind of give up on the social life: your social life is your workmates. – trainee

REFLECTING BACK

In the final batch of data collection, trainees, team leaders and supervisors were asked to reflect back on the project and what they had learned over the previous two years.

From the perspective of the companies, the initiative has been a success in that six of the nine trainees that were recruited have completed or are near to completing their qualifications. The project has also been one that has resulted in a considerable amount of organisational learning, despite what one manager described as some "hiccups" along the way.

The employment of women in line mechanic roles is believed to have changed the attitudes of people in the industry, with a much higher level of openness about women coming into trades roles.

The visibility of the project had also resulted in a greater awareness amongst external groups about a range of different career choices for young women. For example, one of the companies, in conjunction with ESITO, had taken teachers from 13 local high schools through a sub-station so they can better understand the work and career opportunities for women.

That said, lessons learned by the companies involved have been varied. The high visibility of the project, and

the resultant attention received by the trainees, may have had unfortunate consequences, resulting from perceptions of favouritism and making the trainees stand apart from some of their colleagues.

Experiences from the project have resulted in both companies reflecting on their recruitment criteria and processes. One manager noted an increased emphasis on ensuring that new trainees have had exposures to similar sorts of environments and engagement in activities that involve manual dexterity.

Both companies also noted the importance of setting clear and realistic expectations for new trainees about the nature of the environment and the work so that new recruits clearly understand what they are letting themselves in for. Similarly, teams taking on new trainees needed to have expectations set for them for how they treat new trainees, particularly when they differ in some way from the rest of the group.

The choice of supervisor and team leader was seen as particularly important in influencing the integration of women into teams. The need for greater clarity of expectations around performance and better management of on-going performance was also identified as an area in which improvements could be made.

Providing more structured support and back-up for trainees was something that both companies were considering in order to ensure that mechanisms were available to draw on when difficulties were being experienced. Potential mechanisms for this include formal mentoring programmes and the establishment of networks for women in the industry.

However, continuing challenges in integrating women into non-traditional trades jobs remain. In many instances,

these arise from the nature of the work – including the long hours of work, project work that may involve working away from home, and the need to balance the demands of work and family.

The final word goes to reflections on the last two years in the words of trainees themselves, who expressed a range of views about their personal experiences:

I have worked hard before but never put so much time into ... this has been the best time in my life in a workforce – the biggest change in my life. I will look back at this and talk about it. I am so surprised. ... I was strong before but I feel good about myself, knowing that you can do more things physically is good. The most important thing is knowing that you come to work and stay healthy. I love my job.

If I could go back and start again, I would not have come into this industry in the first place but now that I'm doing it, it's a good career option and will open a lot of doors. I would have had to think about it because of how I was treated. I don't think anyone deserves what I have been put through but what can you do?

It's a good industry but you've got to be a tough person, you really do. I see what they're saying at interviews and stuff, they say you've got to be one of the guys. It's definitely not for the faint hearted. You have to have a strong mindset, and although some people say they have – you actually have to and you definitely have to have a certain amount of strength and you've got to have people skills as well. You won't get far if you can't get on with certain types of people – it is a good industry but it isn't easy.

I think they've gone beyond [my original expectations], I've never ever worked for a company that has been so good to me; everything I do my company is behind me and [the manager] has been behind me too. So I think my expectations have been met and beyond – I never expected it to be anything like this. I knew it would be good but not this good.



Conclusions

This research has provided a unique opportunity to understand the dynamics of change as workplaces seek to operate differently. It has uncovered the tensions that arise as an inevitable result of the change process: between those who seek to lead change processes as a response to strategic imperatives versus those who are required to implement the change on the ground; between those who welcome change and those who resist it; between those who will reap the benefits of change and those who perceive themselves as losing out.

It has also illuminated some of the issues that arise and which must be addressed by companies when introducing women into a previously male-dominated workplace and occupation – although many of these issues are also likely to be faced when introducing any employee group that differs in some way from the majority group.

A number of these issues are picked up in the recommendations below for companies that are putting diversity initiatives in place. A recurrent theme is the overall importance of good human resource management practices for managing the workforce challenges facing New Zealand companies.

The report's conclusions and recommendations are drawn from the research that was designed to answer the project's original questions.

The Cohort Effect

The first research question asked whether the employment of a cohort of women trainees could assist individual women by providing peer support: existing research shows that while some inroads had been made into employing women in non-traditional trades, that isolation as a sole woman in male-dominated workplaces can limit retention. The answer to this question is a qualified yes.

The cohort had a strong sense of themselves as a cohort, with personal relationships being built up between trainees in the companies, and to a lesser extent, between companies. There are, however, caveats to this response. First, this cohort of trainees had a considerable amount of public attention paid to them, and as part of this had the opportunity to meet together and participate in social events connected with the project to a much greater extent than would be usual. To that extent, for a similar cohort effect to have the intended effect of reducing isolation for trainees, deliberate efforts would need to be made to ensure that trainees were able to be in contact with each other and establish relationships.

Second, not all the trainees felt a need for what was seen as the main use of the cohort for trainees – as a reference group of people who understood what they were going through, and who provided support and a sounding board. Some trainees found this support in an extended group of people that included family and whānau, friends and workplace mentors. Women who had done the job before were also important role models who helped trainees overcome a sense of being isolated or different. The

conclusion reached in the research is that women working in non-traditional trades need available support networks that assist in building their resilience to deal with unfamiliar situations. Networks of women currently or previously working in similar roles are an important part of this support infrastructure, and structured opportunities need to be made to happen for relationships to develop within these networks.

HEALTH AND SAFETY ISSUES

The research also asked the question of whether the health and safety model used in the Electricity Supply Industry sufficiently considered issues that might affect women relative to men. At one level, this question can be answered by looking to the high priority given to health and safety in the industry in a way that benefits both women and men. At another level, it can be argued that the emphasis on safety crowds out occupational health issues that may have a greater impact on women rather than men, including hazards that impact on reproductive health, and psycho-social hazards resulting from workplace behaviours such as bullying or intimidation.

At a more fundamental level, however, the industry needs to consider whether aspects of the business model on which it operates and the way in which work is organised limits the potential workforce available to it. The industry is highly competitive, and work is frequently undertaken in testing conditions and under strict time frames. It currently relies on the strength and agility of a relatively young, male workforce for the success of its business model while less

ability in these areas (resulting from a larger number of women or an older workforce) could incur costs associated with organisational change and require closer management of health and safety. If the industry is to attract a more diverse workforce, while maintaining its high level of commitment to health and safety, it may need to think further about the investment that is being made in plant and equipment and the way in which work is organised.

Work culture

Lastly, the research considered the work-related attributes and qualities that are valued in line mechanic roles, and the extent to which female and male trainees exhibited these. These have been well-canvassed in the report and include being a good team player, paying attention to detail, thinking ahead, taking the initiative, respecting others in the team and being a good communicator. Some people in each of the companies had a view that the

women trainees had in fact exhibited a higher level of skill than male trainees, particularly in terms of communication, attention to detail and planning.

On the other hand, there are some attributes and qualities that are valued in line mechanics that are unspoken, and which make a difference to the regard with which line mechanics are held, and which are more difficult for women to meet. These include “getting stuck in” to physically demanding tasks, and joking around and “being one of the boys”. While a majority of the people that the women trainees were working with had gone to considerable efforts to be inclusive and to fully assimilate them into effective team functioning, there were times when there were ambiguities in terms of the behaviours that were expected of women trainees. Some of these ambiguities arose from the long-standing and ingrained attitudes of their male colleagues about appropriate roles for men and women, and the nature of relationships between genders.



Recommendations and Challenges

FOR ELECTRICITY SUPPLY COMPANIES

1. Workforce strategy

- Be aware that organisational champions and leaders are required to effectively promote greater gender diversity.
- Be aware of assistance that's available through ESITO, the EEO Trust and other leadership organisations to develop a more diverse workforce.
- Women appear to be more risk-averse to health and safety issues – they pay more attention to detail and procedures, are better at identifying hazards, and were more likely to assess a situation before rushing in. How can this be used to greater effect?
- Recognise that some of the motivators for women may differ from those of men. For example, they may prefer improved quality of life, a greater sense of job satisfaction and remuneration over alternative employment options, good career prospects and taking on a challenge.
- Recognise the business benefits of more gender diversity in your workforce: improved ability to meet the needs of a diverse customer base, having highly skilled and committed employees (because women often have to do better than men to succeed in these situations), reduced need to recruit offshore, and possibly an enhanced awareness of, and better approaches to safety. Women also tend to have better communication and interpersonal skills that enable the business to be more competitive and responsive.
- Check your health and safety procedures – are there any changes needed if females are on the job, for example, with access to appropriately sized PPE and in dealing with pregnancy, breast feeding, underwire bras?
- Ask the questions: “What does the electricity supply workforce of the future look like and what will it take to achieve that workforce?” and, “Is ‘growing our own’ a realistic option in an environment of increasing competition for talent?”
- Ask: “How do we develop tradespeople and our workforce in the future through greater attention to improved people management and promotion of a learning culture?”

2. Recruiting and selecting female trade trainees

- When advertising, be explicit that you want both women and men to apply.
- Include in the selection process a detailed description of the work required (women are less likely to come with knowledge of the sector) and some practical experience with actual tasks (“taster” experiences). Be clear about your expectations of new recruits, including around working in a predominantly male workplace.
- Recruit more than one woman – just the knowledge there is someone else out there facing some of the same challenges is a key support to female trade trainees, but don't assume they will be great friends.
- Beware of gender bias in your selection panel when assessing skill, ability and personal aptitude (for example, the general tendency for men to have greater strength does not reflect a difference between all men and all women).
- Be prepared to be surprised at the calibre of female recruits in terms of their interpersonal, teamwork and cognitive skills and their enthusiasm for the job and learning.
- Pastoral support should be an element considered for all trainee positions, and in the case of women, additional support and the development of peer networks or mentors are all approaches worth considering to assist in breaking down barriers of isolation, building additional resilience, and creating an environment where women can thrive.
- Women, like men, are used to managing their bodily functions in the field. At the same time, ensure consideration is given to enabling adequate access to toilets.
- Female trainees who have some maturity take a professional approach and have some confidence and experience with managing issues and provide an added value to the company: they gain the respect of their workmates quicker, are seen as more settled, are motivated and treat work more seriously.

3. Preparing your current workforce

- Tell your current staff you are recruiting and want applications from women and men (sons, daughters, nieces, nephews, and so on) – they are your best source of recruits.
- Involve operational area managers in the selection process to build “ownership” of the selections

made, but be clear in your expectations as little is to be gained from drawing out the recruitment process and providing space for resistance to develop.

- Set clear expectations about how you expect existing teams and managers to treat women in crews/gangs/the organisation (for example, it is illegal to discriminate or harass anyone on the basis of gender and it will not be tolerated; all employees are valued and included in the operation of teams).

4. Make potential female recruits and their families aware that:

- there are a wide range of technical and trades jobs in the Electricity Supply Industry
- there are labour shortages in the industry and on-the-job trades training toward internationally recognised qualifications is available
- the vast majority of trades and other people working in the industry are male, and this can be challenging
- there are initiatives in the sector to promote trades opportunities to women
- they can earn good wages and there are a range of career prospects
- they have to like working outside for many of the available roles, be able to work at heights, and have an interest in learning technical skills, using machinery and tools
- they require a reasonable level of fitness and a can-do attitude
- it helps to be pro-active and to offer to give physically challenging tasks a go and to ask questions – getting stuck in is how things work best in the work crews/gangs.

5. Support good performance and development

- The variation in performance and progress in learning will be as great among individual females as it is among individual male trainees.
- Likewise, individuals have different personalities and some combinations of people work better in teams/gangs than other combinations of people.
- Regularly state expectations of performance that are clear and explicit, for example, “At this point in your training I expect you to be ...”
- Encourage women to improve their fitness and strength to support their increasing capacity to complete physical tasks on the job.
- All staff will need at times to make decisions about whether a task requiring strength is within their capability without putting them at risk of physical

injury – women can meet the requirements of the job, but in general men will often be in a better position to deal with the more strenuous requirements.

- Neither behaviour that singles out female trainees in a derogatory way nor behaviour that seeks to “protect” women is acceptable – women need to cut it on the job in the same way men do and to do that they need exposure to all aspects of the job and coaching to learn the job.
- Things change in people’s lives that affect their employment and require management attention – this may for example, be a decision to re-locate overseas, a pregnancy, unwell family members, a health scare or the need for rehabilitation. These changes for individuals are part and parcel of managing employment and, handled well, there should be no differential impacts whether the employee is female or male.
- Relationships may start between employees in a team. You need to decide whether the affects on the team require any action.
- If female trainees are struggling, act sooner than later – find out what’s going on, talk to the trainee and develop a strategy to respond; protect your/ the company’s investment in a potentially long term employee.
- For some female trainees, having consistency in the crew/gang works well to support their development and performance.
- Keep trainees with a focus on the future: completing their qualifications, thinking about their career options – trainees who are ambitious will proceed more quickly in their learning.
- Good people management practices that recognise how trainees learn, develop and improve performance are key to delivering good results with any trainee.
- Mentors not in line management roles with trainees and who are knowledgeable in the industry can provide sage advice to trainees facing a wide range of challenges in a new industry.
- Recognise that female trainees may face added challenges at home where partners or other family members may have questions about predominantly male work environments, the need for long work hours and jobs away from home, and the ongoing management of domestic tasks.

6. Team work/foremen

- Foremen need to encourage trainees to ask questions by responding in kind and by supporting them to get involved by showing trust in them to try new things.
- Most importantly foremen need to work with female trainees like they would with any trainee to ensure they are included in the team – there are good safety reasons for this.
- Be direct about working in physical proximity, for example, some say, “I just have to forget you’re a woman and think of you as a man when we do this.”
- Women in general appear to have a more risk-averse approach to health and safety – this is an asset to the team and company (for example, with attention to detail and procedures, identifying hazards, and assessing a situation before rushing in).

FOR ESITO

- Supplement existing diversity leadership by developing tailored resources for members that promote the business case for women trainees.
- Recognise the importance of regularity in trainee co-ordination and pastoral support to sustain female trainees’ resilience, perseverance and training success.

FOR INDUSTRY TRAINING ORGANISATIONS

- Recognise that some of the motivators for women may differ from those of men, for example, they may prefer improved quality of life, a greater sense of job satisfaction and remuneration over alternative employment options, good career prospects and taking on a challenge.
- Promote your industry to women and men – the benefits to the industry and for individuals can be significant.

FOR GOVERNMENT AGENCIES

- The industry training system has supported significantly more men than women to gain qualifications. At December 2011, women comprised less than 12% of all modern apprentices, with 36% of those completing qualifications in hairdressing and beauty services.
- Decreasing gendered occupational segregation and improving women’s access to trades training could contribute to improved economic outcomes for women, industry and the economy generally.
- Give more consideration to the extent to which industry training policy settings promote/hinder opportunities for greater gender equity in the rates of participation and qualification completion of women and men.
- Engage in discussion with industry, particularly male dominated industries, on the benefits and opportunities of recruiting and training females in trades roles.

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Appendix One: Detailed Methodology and Process

OVERVIEW

The methodology used to answer the research questions for the project involved multiple methods, the majority of which were qualitative in nature. The bulk of the data was collected through semi-structured interviews with the women who had been recruited as trainees. All of the women were interviewed on a face-to-face basis at least three times over the course of the project, and all were interviewed by phone between two and four times. Interviews were also conducted with their supervisors, team leaders, trade coaches, key company personnel, ESITO staff and people running training courses. A summary of the number of interviews conducted during the course of the project is set out in the following table. Interviews ranged in length from 20-60 minutes in length. Face-to-face interviews were all recorded and transcribed.

Table 2: Summary of interviews conducted

	Northpower	Electrix
Number of interviews conducted with trainees	30	16
Number of interviews conducted with team leaders and supervisors	28	8
Number of interviews conducted with other company personnel (management and HR)	7	13
Number of interviews conducted with others outside the company (including ESITO)	7	

In addition to the interview data, the findings contained in this report include analysis of documentation, observations of trainees at training courses and on the job, collection of data from company workplaces and ESITO, and collection of data from a male comparator group.

Baseline Data Collection

Baseline data collection took place in July and August of 2010.

Interviews

Trainees

All trainees first met with the researchers very early on in their employment – on their first day in the case of one company and at the end of the first week in the case of the other. The first meetings were conducted as informal group discussions with two groups of three and one group of four.

All trainees were provided with information on the research project and what it was expected to mean for them over the next two years. They had an opportunity to ask questions. Written information was also provided for them to take away, and each trainee provided signed consent to participate in the research. From these discussions, the women understood that their individual views would be confidential to the researchers, that they would not be identified personally, that their participation in the research

was voluntary and would not affect their employment or their training in any way.

The first trainee interviews were largely concerned with gathering background information on the trainees, hearing about their experience of the recruitment and selection process, and understanding their expectations for their employment and the process of training. All interviews took place at the companies' depots, were recorded digitally and were later transcribed. The length of the group sessions varied from 20-40 minutes.

Company personnel

A number of interviews with other company personnel were also undertaken at the time of the baseline interviews. These were of two types. The first were with senior managers and HR staff and covered issues related to the establishment of the project and the process so far, as well as detailed information about the recruitment and selection of trainees and their induction.

The second type of interviews were with training and supervisory staff who were expected to be directly involved in supervising the trainees, or involved in training and assessment. These interviewees were provided with information about the research and were given written material to take away. Interviews were then conducted about their expectations in respect of taking on women trainees.

All interviews conducted with company personnel were conducted face-to-face at their offices.

ESITO personnel

Interviews were conducted with key ESITO personnel about their expectations for the project. Interviews were recorded and notes were taken from the recordings.

Documentation and data

A range of documentation was collected at the beginning of the project. This included:

- recruitment and selection policies and procedures
- the actual advertisements used for advertising for the women trainees
- information on the process used for induction
- health and safety policies.

Where available, comparable data for previous (general) recruitment, selection and induction processes was also gathered.

Data was also obtained from ESITO. This included demographic details for the trainees, details of previous school qualifications, and details of the qualifications in which the trainees were enrolled.

Male comparators

A key question for the evaluation concerned whether having a cohort, or group of women training together, in any way changes the experience of and outcomes from training, over and above the experience and outcomes that would have happened in the absence of a cohort of women. Accordingly, we sought to establish a male comparator group from male trainees who had commenced their training up to six months before the women trainees.

A group of male trainees were identified at each of the companies. The researchers met with these trainees to inform them of the research and seek their consent to participate. 10 trainees agreed to participate.

It had been intended that the ESITO Training Co-ordinator would provide each trainee in the women's cohort and the male comparator group with a form to complete at their 3-monthly visit with the trainee. This asked trainees to identify and describe any critical incidents that have occurred in the previous quarter that have made a difference to their training or employment. In addition, they were to be asked to complete two simple rating scales about their overall levels of satisfaction with their job and with the progress they were making in their training. For a variety of reasons, this manner of data collection did not work systematically and was abandoned. However, the remaining female trainees and the male comparators were asked to complete a questionnaire that included ratings-based questions at the end of the project.

On-going data collection

Following the initial data collection phase and establishment of the processes for collecting the data records described previously, a cycle of interviews for on-going data collection was undertaken.

Contact with the women trainees took place approximately every three to six months. On three occasions this involved face-to-face interviews, while the remainder of the contacts were made over the phone. In all cases, the content of the interviews was focused on the experiences of the trainees in the previous three to four months. Interviews were supplemented with observations of trainees in their work environment, and for one company, during the trainee's attendance at a block-training course.

Contact was also made with supervisors and team leaders at six-monthly intervals to gather their perspectives. These were frequently completed by phone, with the exception that all interviews conducted at the mid-point of the research with supervisors and team leaders were conducted face-to-face. Difficulties were commonly experienced in establishing contact with supervisors for interviews, and up to three calls were made before attempts to make contact were abandoned.

Final data collection

The last data collection took place in October 2012, and involved interviews and collection of some final data.

Interviews

Trainees

Interviews were held with all remaining trainees. While interviews carried out during the course of the research had a focus on the previous three months, the purpose of the final set of interviews was to take a longer term time frame and to reflect on the whole of the previous two years. The questions focussed on the experiences of trainees in working in the industry, the supports that had assisted them and any barriers that they had faced. Specific questions were asked about training, workplace culture, health and safety, whether they believed that there had been a cohort effect, and any general overall reflections.

In addition to the final interviews, trainees were asked to complete a short (15-item) self-completion questionnaire. This involved a five-point rating scale, asking whether they agreed or disagreed with a series of statements about various aspects of their work and training. The questionnaire was completed by six of the remaining trainees, and nine of the original male comparator group.

Other company personnel

Interviews were also held with team leaders and supervisors who had worked with the trainees over the previous two years. Questions focussed on the approach that the trainees had to learning the job, how they operated in teams, the presence or absence of a cohort effect, health and safety, and general reflections. Probes were made to explore the attitudes of interviewees to the women trainees, and their perceptions as to whether there were any differences between them and male trainees.

HR and management staff in the two companies were also

interviewed to gather their reflections on their experiences over the previous two years in integrating women into the organisation, lessons the organisation had learned over the duration of the project, and their overall perceptions about how well the project had worked for the company.

Documentation and data

Records of achievement for both the cohort and the male comparator group were obtained from ESITO at the completion of the project. In addition, statistics were supplied on the total number of trainees over the period 2005-2011, broken down by gender and ethnicity.



Appendix Two: Flyer for Recruitment of line mechanic Trainees

Seeking Potential Female line mechanic Trainees

Do you want a Career with Energy?

Would you like to complete a national certificate and become a registered line mechanic?
Like working outdoors, comfortable with heights and enjoy being part of a team?

Northpower Ltd and Electrix Ltd are seeking SIX to NINE female line mechanic trainees to be part of an exciting trainee research project that ESITO is working on. The trainees will be based in Auckland or in Whangarei.

What is required?

You will need to be a female aged at least 16 years old and will be asked to agree to regular interviews with the researchers and to complete a log or diary.

What do line mechanics do?

Line mechanics mostly work outdoors installing and maintaining power poles and overhead and underground lines. They provide an essential service to the community

by dealing with emergency repairs to electricity lines. They work in supportive teams and have a strong focus on health and safety.

ESITO and the companies will support you as you train by providing a training coordinator and other support people.

If the above sounds like something you'd be keen to do, please contact the Northpower Ltd and Electrix Ltd HR personnel below to register your interest in this great opportunity to develop a Career with Energy.

NORTHPOWER LTD

Melanie Kayes
Senior HR Advisor
Ph: 09 274 4545
career@northpower.com

ELECTRIX LTD

Melony Lowe
HR Coordinator
Ph: 09 2701734/ 021 705070
melony.lowe@electrix.co.nz



Appendix Three: Generic Information Prepared for the Companies and Customised for Trainees and Supervisors



Electricity Supply Industry Training Organisation – Women’s cohort

What is the purpose of this project?

The Electricity Supply Industry Training Organisation (ESITO) is sponsoring the recruitment of a group of females who will be enrolled to complete the line mechanic qualification. An evaluation of the project will explore what the company gains from having a group of female trainees and to understand both real and perceived barriers to female participation in the electrical supply trades qualification, and work.

ESITO is concerned that within the electrical supply industry there is a strongly held attitude that females in general are not capable of doing line mechanic jobs. There is the perception that a key barrier to female participation in such jobs is the assumption they are not physically strong enough and that there are uniform and health and safety concerns relating to women.

What is the research about?

The research is asking a number of questions that will provide an independent assessment of the value/worth/merit of the project. This is important both for the electrical supply and other industries where gender segregation is found. The key questions the research will seek to answer are:

1. Does isolation and lack of peer group limit women’s recruitment and retention in line mechanic jobs?

A key output from the research will be to assess whether having a cohort or critical mass of women makes a difference both to the trainees’ retention in training and in the industry.

2. Does the health & safety model used in the electrical supply industry for line mechanics sufficiently consider issues that might affect women relative to men?

The health and safety components associated with the electrical supply industry are a central area of organisational concern particularly in relation to expressed concerns about individual physical attributes and protection required for the job.

3. What are the work-related attributes and qualities that are valued in line mechanic roles (including trainee line mechanics) in the industry and to what extent are these exhibited by female and male trainees?

Beyond understanding how the workplace dynamics themselves ensure full participation by a female cohort in training and work, the research will seek to understand what advantages, or differences, may exist for companies from increasing gender diversity in line mechanic roles. This is important in order that the findings are of practical use in the industry.

How is the research being carried out?

The trainees are being tracked through the course of the research, through 3-monthly interviews. We are also undertaking observations of the trainees in both on-job and off-job training environments. In addition, the supervisors and managers, and HR staff are also being interviewed.

A comparator group of male trainees are also being interviewed.

What will happen to the findings?

Heathrose Research will analyse the information gathered in the research at the mid-way point and at the completion of the project, and write a report of the findings.

The findings will be used, along with other available information, to design interventions to assist ESITO and others in the industry to better support female trainee recruitment, completion and retention.

Who are the researchers?

Heathrose Research is an independent research company that has been contracted by ESITO to do this research. The project team members are Heather McDonald and Dr Rose Ryan, the Directors of Heathrose.

Heather McDonald is the Project Manager. If you have questions she can be contacted at heather.mcdonald@heathrose.co.nz or on 04 384 3543.

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Finally the researchers would like to thank all of the staff at Northpower and Electrix who willingly participated in interviews over a two year period and generously shared their insights and experience. Most particularly we owe a debt of gratitude to and celebrate the achievements of the nine women who have made a place for themselves in the electricity supply industry. Without your willingness to describe your experiences, other women who follow you and their companies would be the poorer. We dedicate this report to you.



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