



Resourcing Strategy for Utilities

MHC Perspective

1.0

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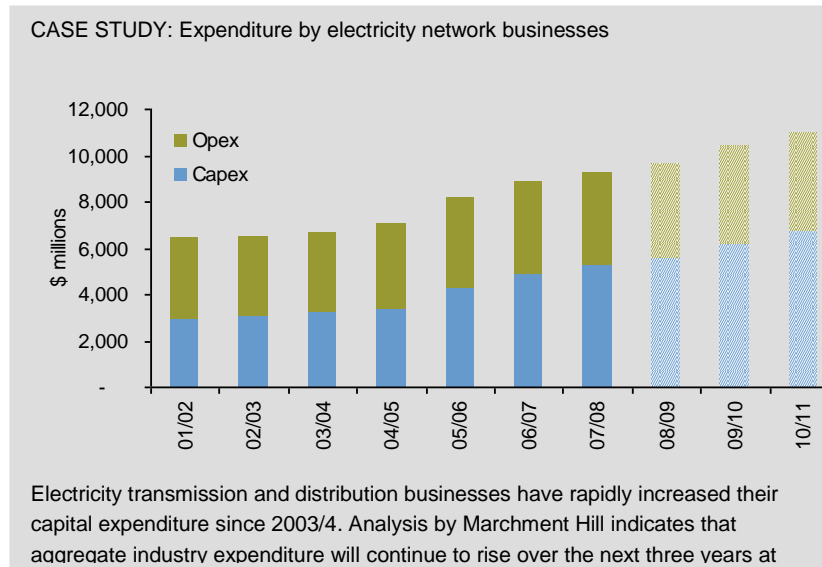
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Executive Summary

The global recession might have taken the edge off the resourcing challenges facing utilities, but the underlying drivers are fundamental and unstoppable, and demand a full-fledged strategic response far broader and deeper than anything the industry has seen so far. A decisive response to the long-term challenge of resourcing a utility business has the potential to completely alter that business' operating practices, relationships with its employees and suppliers, and its culture.

The recent easing of labour and services market conditions in Australia should not be mistaken for the end of the utilities resourcing crisis. The challenges that Australian utilities face in continuing to build, maintain and operate their networks and serve their customers, are unprecedented in the history of the industry.



Australia has ridden an economic boom that has driven across-the-board increases in consumption of energy, water and other business inputs. In addition a range of other factors have contributed to increased workloads: a cyclical upswing in asset replacement and refurbishment work based on previous deferring of investment, a steady increase in customer expectations and, in some quarters, a detectable shift in regulatory bias in favour of investment.

Over the last few years in particular the utilities industry has faced severe, and in some areas critical, skills shortages across professional, paraprofessional and trades categories. Peak industry bodies¹ have long been aware of the problems of reduced apprenticeship intakes and a generational shift away from trades. A range of Federal, State and Industry-led initiatives have been implemented, such as industry-led training development, "apprentice introductory" courses, financial assistance for trainees and immigration concessions.

¹ See for example Electrical and Communications Association "Electrical Apprenticeships Report" May 2006.

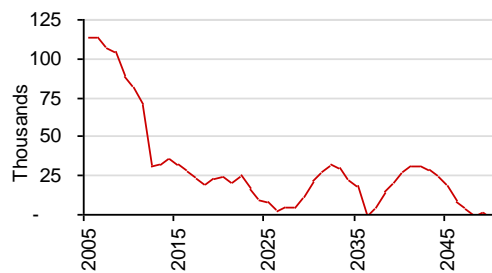
The effects of demographic change in the workforce will be felt sooner than the public at large imagines.

The common industry response to the situation has been to turn to the proven sources of supply by outsourcing low-skilled or easily packaged work, embedding contractors in the design office, increasing apprentice numbers and attempting to recruit new staff. There is an increasing awareness however, that these responses are only stop-gaps in confronting longer-term issues of demographic change and increasing workforce mobility.

Workforce demographics have not entered the public consciousness in the way that say, water shortages have over the last five years (perhaps because workforce shortages are beneficial to individuals in the short-term). The effects of demographic change in the Australian workforce on the economy in aggregate will however be felt much sooner than the public at large imagines.

From 2012 the number of people entering the workforce in Australia will start to fall dramatically. From just under 120,000 per annum in 2006, within five years the workforce will grow annually by less than a third of that number and will continue to

Exhibit 1: Estimated net change in the size of the Australian workforce (age 15-64) to 2050.



Source: Australian Bureau of Statistics release 3222.0 Population Projections, Australia (Series A).

In the urban water industry nearly 50% of those employed have been with their employer more than 10 years. Generation Y regards 4-5 years as long-term employment.

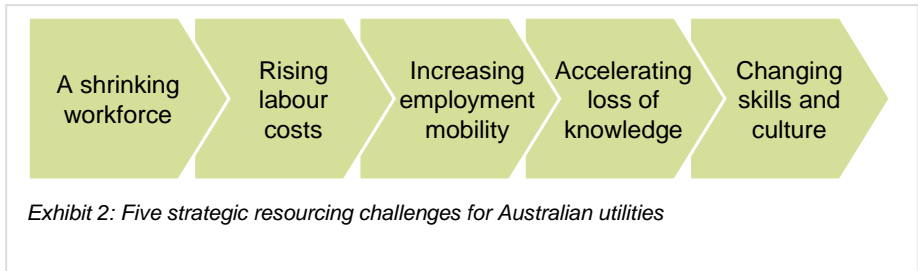
decline into the 2020s. Marchment Hill's client work confirms anecdotally that some in the industry are feeling these effects already, having difficulties either in the number, or in the quality of, applicants for apprenticeships.

It should be obvious, with the recession upon us, that there have been some cyclical effects at play in the recent resource shortages. The mining boom has ended, and industry capex will not continue its breakneck growth forever. But the fundamental long-term problem will not be in persuading young people to take up trades or engineering – it will be that there will simply not be enough people.

Similarly, although they have yet to show up in statistical data on employment tenure, social surveys² point to a change in the expectations of young people entering the workforce in regard to the duration and nature of their employment relationship. Within the urban water industry for example, nearly 50% of those employed have been with their current employer for more than 10 years, and 30% for more than twenty³. Members of 'Generation Y' regard a long-term employment relationship as 4-5 years – and expect a high degree of workplace flexibility into the bargain – although it remains to be seen how they will respond to the first recession of their working lives.

² See for example McCrindle Research, "New generations at work: attracting, recruiting, retaining and training Generation Y".

³ Source: Water Services Association of Australia occasional paper #21: "An assessment of the skills shortage in the urban water industry".



Underlying drivers of these challenges are fundamental and unstoppable, and demand a full-fledged strategic response.

For businesses that invest time and resources in attracting, training and developing their workforces, these factors pose enormous challenges. Our contention is that the underlying drivers of those challenges are fundamental and unstoppable, and demand a full-fledged strategic response far broader and deeper than anything we have seen so far. We believe that a decisive response to the long-term challenge of resourcing a utility business has the potential to completely alter that business' operating practices, relationships with its employees and suppliers, and its culture. In the remainder of this paper we will examine five fundamental and related strategic challenges that demand a position – and a response.

1 CHALLENGE 1: A shrinking workforce

Businesses will have to become much more conscious and deliberate in staking out their competitive position in the labour market.

The simple fact of having to do the work with fewer people will challenge businesses to re-think where the next generation of skilled workers will come from. The simplest and most direct strategic choices will be about how the business will conduct itself in a tightening labour market:

- Tactical recruitment and retention. The questions of how to recruit and retain experienced people will become more urgent as competition in the labour market increases and businesses will be pushed to exploit or develop sources of competitive advantage. Some businesses may choose to exploit natural advantages related to their location; others may elect to pay more. Still others may put their effort into looking overseas for experienced recruits⁴. However they choose to do it, businesses will have to become much more conscious and deliberate in staking out their competitive position in the labour market.
- Use of external partners. The increasing use of contractors continues to generate concerned comment in relation to skills formation – contractors, it is said, do not put on apprentices or indeed do anything much to increase the aggregate supply of resources.

Marchment Hill's observation based on our client work is that for many contractor relationships this is indeed true. However where contractors are given sufficient commercial certainty (and the right contract performance framework), they have proven willing and able to both train apprentices and recruit from adjacent industries or from overseas. Some contractors are themselves extremely adept at tapping the market here or overseas for capacity or capability⁵.

Making a strategic choice to rely on external parties, not just for their primary function, but for their skills and position in the labour market, is clearly not to be done lightly, particularly when control of risk is relinquished. Nevertheless, such a partnership could prove decisive in securing a sufficient share of the resources that are available.

- Stance on training. Historically utilities in Australia have 'trained for the industry', accepting a high attrition rate among completing apprentices as the price for a well-trained workforce. We have observed however that when apprentice intakes reach very high levels, the costs associated with that training become more evident – not just the direct costs, but reduced productivity among crews hosting apprentices and among those supervising newly-qualified tradespeople. Clearly the industry as a whole has an interest in skills development (and not only for tradespeople) but the benefits and burdens fall unevenly. The strategic challenge for businesses is to find, between their industry peers, suppliers and outside parties, a skills formation strategy appropriate to capability and capacity to train, and to their particular needs.

⁴ We observe that the track record of Australian utilities with overseas recruits is mixed, suggesting that the ability to successfully find, select and integrate overseas workers could provide an edge in the tactical resourcing battle

⁵ Indeed, contractors' position in the employment market is in some ways complementary to that of their customers: working for a contractor is a very different career proposition to working for (say) a water utility.

2 CHALLENGE 2: Rising labour costs

Having to pay more for labour ought to cause businesses to shine a light on productivity.

A natural consequence of a declining labour supply is that labour costs will increase. Having to pay more for labour ought to cause businesses to shine a light on both direct labour productivity and on the balance of labour compared to other inputs. The strategic options that thus arise frame a range of different approaches that are clearly contingent on other aspects of business and resourcing strategy:

- Workforce automation. The deployment of new technology offers opportunities to maximise the value from the field workforce by increasing work packaging and dispatch efficiency, and by providing better data back into the asset management process.

Experience overseas suggests material gains in labour productivity are ultimately achievable meaning that even taking into account the substantial capital requirements, these investments are relatively attractive.

However while several Australian utilities have deployed or are deploying mobile workforce management technology already, there are non-technology obstacles to realising the benefits⁶.

- Network automation. A straight case of capital-for-labour substitution can be seen in the increasing penetration of SCADA, condition monitoring and automation technologies into distribution networks. Clearly the business case for such investments varies greatly across asset classes and across different areas of the network, and is contingent too on regulatory service standards and incentives. Hence businesses will not all see the same benefits – or adopt the same strategies.
- Work methods, crew and fleet composition. Relative to the US and UK where wage rates are higher, Australian utilities make little use of single-person crews. The basic trade-off is between the costs of labour and of fleet and equipment; however the benefits of smaller crews are highly contingent on network characteristics. There are also non-economic obstacles to the use of smaller crews (such as safe working requirements) – hence the barrier to adoption of smaller crews may not be economics but the need for innovation in work methods⁷.
- Performance incentives. Incentives for greater or better-directed effort are a proven, if double-edged, way of increasing labour productivity. We see this in two

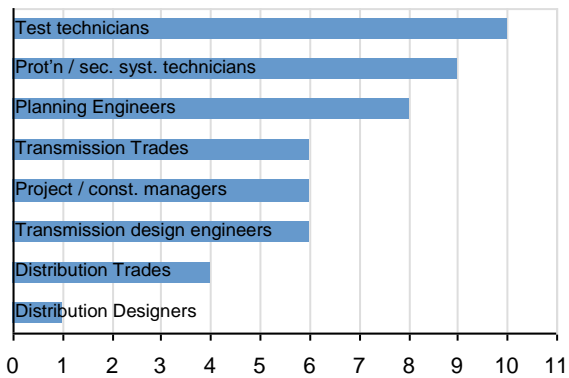
Businesses that get incentive schemes wrong face employee disengagement or worse.

⁶ Industrial relations concerns typically arise; Australian workers have been resistant to the adoption of auto-dispatch type functionality; fleet availability and work group skills mix may also affect the benefits gained; regulatory cost recovery may prove difficult. Also many Australian businesses are in the early stages of developing complete asset data sets, and 'closing the loop' on asset management decision-making may be years off yet.

⁷ One example from the water industry is the designing-out of confined spaces to facilitate future access by single-person crews.

forms in Australia – pay for productivity⁸ in a collective bargaining context, and pay for individual performance. While it is hard to argue against performance incentives in principle (and indeed, we have seen some very effective schemes), getting the details right is notoriously difficult. The schemes have to be transparent, direct and powerful enough to actually change behaviour, as well as being equitable in process and outcomes. Businesses that get incentive scheme design wrong (or are forced to compromise on important tenets) face employee disengagement or worse.

Exhibit 3: Citations of particular resourcing issues at Australian electricity network businesses.



Note that the most-cited resourcing 'hot spots' are skills that take a long time to acquire.

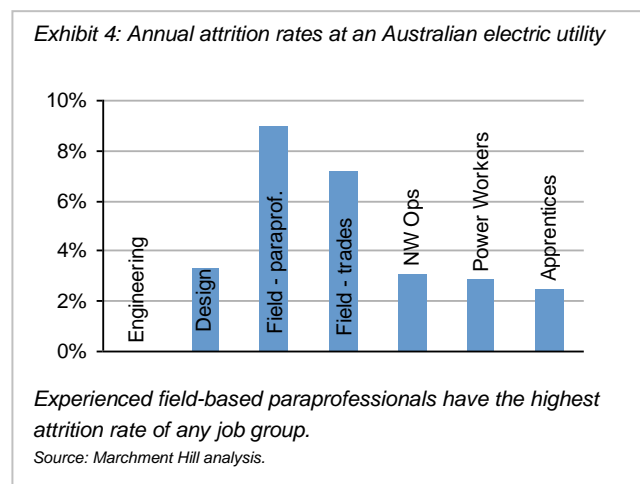
Source: Marchment Hill analysis

⁸ Including transitioning employees to annual salaries, which can be seen as a pay-for-productivity initiative since it removes the incentive to 'load' work into overtime hours.

3 CHALLENGE 3: Increasing employment mobility, especially among the most experienced and qualified

It is becoming obvious that competition for resources – with other utilities, with contractors, with other industries – is now a fact of life for most utilities. Perhaps inevitably, the skills that take the longest to develop and are the hardest to replace are also the most mobile.

Research by Marchment Hill suggests that the professional and paraprofessional ranks are where utilities have experienced the most pain. A Marchment Hill study of one Australian electric utility found overall attrition rates (excluding retirement) of the order of 5% per annum overall, but nearly double that for experienced field-based paraprofessionals (test, SCADA, comms, protection and secondary systems technicians).



This is not surprising, as individuals in these jobs face the most onerous entry requirements and find it relatively easy to transition between industries. A key dimension of resourcing strategy therefore needs to be how to ensure that the business can secure timely access to those skills. A range of alternatives suggest themselves:

Clearly, passing responsibility for securing key resources to an external party is not trivial or without risks.

- Short-term contracting. One positive aspect of employment mobility is that, for the right offer, short-term needs can probably be met from the external market. The supply of distribution tradespeople within the industry is relatively fixed in the short-term as almost all of them work in the industry already, but for engineers and technicians extra capacity exists in adjacent industries – if the business can put the right offer together.
- Sourcing and alliancing. Businesses can choose to outsource the problem of securing access to key resources, or to enlist the assistance of an alliance partner. For many contractors, as we suggested previously, the ability to extract scarce resources for short-term engagements is a key success factor. Clearly the

decision to pass responsibility to an external party in this way is not a trivial one, or without risks. Doing so would represent, for many utilities, a major change from the way they currently use the external services market.

- Standardisation and task redesign. If highly-skilled resources are hard to come by, then it makes sense for businesses to get as much leverage as possible from the work that they do, segregating the most-skilled tasks from the lesser-skilled and ensuring conditions are right to maximise productivity in the execution of those tasks. This is already happening to some extent. We see, for example moves by some electricity businesses⁹ to standardise their substation designs and prefabricate complete indoor assemblies – control rooms or complete substations. Given the acute shortage of test technicians, we would see decomposition of the testing process as a logical extension of this approach¹⁰. It should be pointed out that standardisation will not universally be the best solution, but in electricity it is inexorably making its way into higher voltage assets.
- Development of a unique employee value proposition. In our client work MHC observes that Australian utilities vary greatly in their approach to the labour market. While most espouse some kind of a desire to be an ‘employer of choice’, some distinguish themselves with both a detailed vision of what that means, and a thorough and nuanced understanding of the labour market. The benefits businesses are able to offer prospective employees, by virtue of their location, culture, ownership or other attributes, clearly differ greatly and for some a winning strategy may be to capitalise on those and market themselves to employees who value those attributes¹¹.

⁹ Energex and Ergon notably

¹⁰ Testing (of anything) is a high-order skill, requiring experience and imagination to conceive new ways of ‘breaking’ the subject of the test. But that experience and imagination is re-useable: the person who devises the test ‘script’ does not necessarily have to be the one who executes it, and each instance of a (standard) design does not require a new script. This basic approach is used in the manufacture of countless critical, defect-intolerant assemblies in a manufacturing context. One person we interviewed noted, “It only takes seven years to train a doctor – why does it take 10 years to train someone to test and commission a substation?”

¹¹ Work-life balance is a key theme in the offerings we have seen to utilities employees, for example: part-time and work-from-home options for professionals and administrators; start-at-home / finish-at-home for tradespeople.

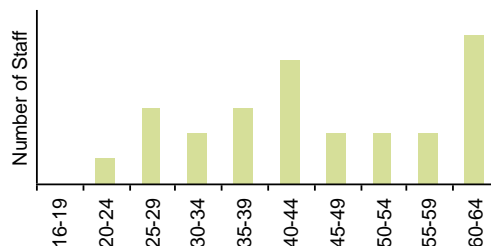
4 CHALLENGE 4: Dealing with accelerating loss of knowledge

Turnover of experienced people, combined with an accelerated rate of retirements, pose a real threat to businesses that have traditionally stored their collective knowledge between the ears of individual employees. The industry faces a serious and rapid departure of technical know-how over the next five years, and many businesses are already feeling this among their senior designers and engineers and are fighting a rearguard action to try to recover some of that knowledge and experience before it walks out the door.

How to avert this loss of knowledge, and to allow the business to accumulate and retain knowledge in the face of more transient employment relationships, poses a fundamental strategic challenge. Australian utilities have a range of alternatives as to where they vest their collective knowledge:

Reliance on the handing down of knowledge can be viable, but depends on workforce stability.

Exhibit 5: Age profile of engineers at one Australian utility (absolute numbers removed to preserve client anonymity).



The business stands to lose 15-20% of its engineers, and a much larger fraction of its collective engineering expertise, through retirement over the next five years.

Source: Marchment Hill analysis.

- In the individual, through mentoring, succession planning and exit management. Without changing the basic paradigm of reliance on key knowledgeable individuals, businesses can simply improve the efficiency with which knowledge is passed from one person to another. We observe this approach being used particularly with senior engineers reaching retirement age. While this approach can provide some relief in the short-term (as can making the transition to retirement a little more gradual) it clearly has limited benefit in dealing with employment mobility which is less likely to be declared in advance for obvious reasons. This is not to say that reliance on the handing-down of knowledge is not a viable strategy, but making it work would require a degree of stability in the workforce quite out of keeping with the industry as a whole.

Attempts to “process-ize” utilities often meet with strong cultural resistance.

- In technology, through IT-enabled data management. As implemented in Australian utilities, IT systems are essentially used to capture and facilitate access to asset condition and geospatial data, perhaps cross-referenced to process and technical documentation. There is no question that these systems have the potential to add a lot of value given the large numbers and geographical distribution of network assets. A common problem is getting data into them however. Many businesses have at some stage lost large chunks of their asset histories, and the investment required to rebuild them goes well beyond what is needed to set up the IT systems.
- In their business processes and procedures. It should be possible in principle to encode the collective knowledge of the business in its business processes. Those processes would change over time to reflect the best collective knowledge of the business, and would be the source of continuity over time as individuals joined or left the business. Embedding the organisation’s knowledge in its processes has been a highly successful strategy outside utilities - in manufacturing, for example. MHC’s observation is that attempts to “process-ize” utilities businesses have tended to fail. We observe a strong cultural resistance to development of a process orientation – knowledge is seen as a source of authority, respect and job security. The result that many businesses end up with a weighty process manual that nobody adheres to, maintains or feels any affinity for.
- In strategic partners. Although largely untried in Australia, utilities could make a strategic choice to outsource the management of some kinds of knowledge to businesses that are better at it. One group with the potential to offer that kind of support is vendors of major equipment suppliers who, in the right commercial relationship, could have both the incentive and the capability to capture, manage and disseminate knowledge.

5 CHALLENGE 5: Matching the skills and culture of the today's workforce to the requirements of tomorrow's business

Contemplating the strategic choices facing Australian utilities, perhaps the hardest resourcing bottlenecks to address are not quantitative, but qualitative. Changing the way people work is not an easy thing to do. Australian utilities have long histories, and long memories. They have large footprints in the communities they serve, and their employees regard their business as an essential service – which it is. They have powered Australia's economic expansion for more than a hundred years. They have, in short, the hallmarks of businesses that are inherently difficult to change.

A response to the current resourcing crisis that recognises the underlying drivers of that crisis and their likely outworkings into the future must, however, consider some fundamental changes:

- Technical and technology skills. The demands for technological literacy among the field workforce will continue to increase as technology investments such as mobile workforce management and network automation become viable. This will in turn strain existing training-delivery models.
- Relationship management skills. Increasing use of specialist contractors, longer-term contractual relationships and more nuanced contractor incentives will challenge those dealing with contractors from day to day. Attitudes founded in the 'master-slave' paradigm will need to be modified and a range of new commercial skills developed.
- Process orientation. Many network businesses have concluded that they cannot keep on reinventing the wheel – that standardisation, whether in designs or in business processes, is a massive lever to efficiency. The challenge is to stay the course, recognising that for many businesses, changes in this area cut across some very fundamental parts of their culture and makeup.

6 CONCLUSION: Responding to a major strategic challenge

We have argued that a decisive response to the long-term challenge of resourcing a utility business will be transformational in nature. Where to begin? By placing the issue in its rightful place as a major strategic imperative:

- Make it a priority. The resourcing challenge competes for mind-space with a range of other issues. A clear executive focus, and unambiguous communication to the rest of the business, is needed to elevate long-term resourcing strategy to prominence.
- Make somebody accountable. In the typical utility the executive-level accountabilities for human resources, vocational development and field services all partly cover resourcing, but a clear mandate to develop a strategy with the breadth of coverage needed is appropriate. Identifying where the accountability for resourcing strategy should lie, what the key interfaces are and how they will operate, will be crucial to getting action.
- Gather the data and analyse the situation. Every business has a unique set of circumstances and endowments – but sits within a complex industry ecosystem. A clear-eyed and fact-based view of the resourcing issues faced, both particular to the business and generic to the industry and the broader economy, will lay the foundations for success.
- Build support for change. There is scarcely a utility that has not seen the impact of a less-than-fully-successful transformation. Given the likelihood that addressing resourcing challenges will require fundamental grass-roots change, the road to achieving broad support within the business will be hard, slow – and must be travelled.
- Assign resources and take action. Ultimately, to create its future, a business must vote with its wallet and with where it puts its best people and the attention of its executives. Without appropriate funding, staffing and executive interest, change will be impossible – but with the right people, support and clarity of objectives, there are few limits to what might be accomplished.

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