

Joint Study by



Western Power

Subdivision Energisation Process Review

*A study of the current status
and improvements for the
Subdivision Electrical
Infrastructure Process*

November 2005

Report prepared by:
UWA Integral Leadership Centre Pty Ltd

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Executive Summary

This report describes the findings regarding areas of concern and recommended improvements for the property subdivision energisation process in Western Australia. This review was undertaken by the University of Western Australia's Integral Leadership Centre for the Urban Development Institute of Australia (WA Division) and Western Power and was carried out between March and November 2005.

As part of the review, twenty-five structured interviews were conducted, fifty-two people completed a specifically designed survey, and three facilitated focus groups comprising UDIA and Western Power representatives were held to determine and prioritise the areas of concern in the design and construction phases of the energisation process.

The areas of concern in the design phase were delays in getting the quote issued, delays in getting the DIP issued, the high rate of non-conformance of designs, and inconsistencies with approach to design and conformance.

The areas of concern in the construction phase were delays in the supply of materials, delays in jointing and energisation, frequency of design revisions during construction, and the lack of adequate process and compliance.

The general issues causing concern were the lack of skilled staff and training, ineffective communication between all parties, inadequate forecasting, and cultural issues. It was also recognised that Western Power has been making considerable effort to address many of these concerns.

The process also highlighted that there was confusion around the effectiveness of the works options currently being offered to the industry. Analysis of the data from the structured interviews, surveys and focus groups along with discussions with other civil works service providers in Western Australia and Victoria gave rise to the following set of recommended actions for UDIA and Western Power:

Processes and Policy

- Western Power to investigate the viability of phasing out their role in the construction phase of subdivision energisation
- Western Power to issue WAPC clearance certificate only once construction work is complete
- Western Power to review approved materials and suppliers lists
- Western Power to address inconsistencies within Design Information Packages
- Western Power to appoint dedicated forecasting staff to determine future material and capacity requirements
- Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members
- UDIA to coordinate Developers to address the issues arising from revisions to designs whilst under construction

Governance

- UDIA and Western Power to monitor the implementation of recommendations in this report

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- Western Power to review membership and function of the UDIA-Western Power Working Party

Documentation

- UDIA to coordinate the development of a subdivision process map and disseminate to all stakeholders in the subdivision energisation process
- UDIA to coordinate the production of procedures and guidelines for the subdivision energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders
- Western Power to review the Underground Distribution Schemes (UDS) manual and Distribution Design Catalogue (DDC) and implement procedures to ensure optimum currency and accessibility

Communication

- UDIA to encourage attendance of Developers at the Western Power Developers' Forum
- Western Power to review participation at the Developers' Forum
- Western Power to introduce a Project Coordinators' Forum
- Western Power to review and improve facilitation and participation in Designers' Forum
- UDIA to coordinate and implement presentation workshops for Developers, Consultants (Design and Civil) and Western Power

Accreditation and Training

- Western Power to step up current training and implement accreditation for electrical LV jointers and cable layers
- Western Power to implement a training program on the process, policies and regulations of subdivision energisation works for industry members and Western Power staff
- Implement an accreditation program for electrical designers

Customer Service

- Western Power to progress its move to a customer service driven culture by implementing a customer service improvement program to be initiated and strongly supported by senior executive

Finally, the report states that it is vital for UDIA and Western Power to decide as soon as possible to accept or reject these recommendations, and then determine the responsibility and timeframe for implementation.

1 Introduction

The property development industry in Western Australia is predicted to remain a vital and growing part of the Western Australian economy. The rapid growth in population and subsequent new property development has placed a strain on Western Power's ability to deliver services at the level expected by property developers and other stakeholders. This study aims to examine the problems and their possible causes, and to recommend possible solutions to improve the subdivision energisation process.

The report presents information and insights gathered from a process of interviews, surveys and focus groups conducted with UDIA members and Western Power staff. Observations provided by consultation with other service providers are also described.

A list of 21 recommendations that arise from the key findings of the research is presented. The report concludes with a proposal that UDIA and Western Power circulate these recommendations to key stakeholders for evaluation and determination of responsibilities and timeframe for those recommendations accepted.

2 Scope of Project

The scope of the project, as agreed with UDIA and Western Power in April 2005, is to "identify and prioritise issues for UDIA members and Western Power to improve the design and construction process of electrical infrastructure. This will include a description of the current problems and possible causes."

It was agreed that this would be achieved by conducting a series of interviews, surveys and focus groups, as well as consultation with some interstate service providers.

3 Report Terminology and Data Notes

Throughout the report the term **UDIA members** refers to Developers, Civil Engineers, Civil Contractors and/or Electrical Designers who are members of the Urban Development Industry Association, from whom the data was gathered.

The broad term **Consultants** refers to Civil Engineers, Civil Contractors and/or Electrical Designers in order to separate them as a group distinct from Developers.

The term **Developers** encompasses those classified as small, medium and large developers unless this is specified.

Following are a list of abbreviations used in the report:

CCF	Civil Contractors Federation
CPM	Construction Project Manager
DCR	Design Conformance Review

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DFIS	Distribution Facilities Information System <i>The geographic computer information system that records the structure of the electricity system in WA.</i>
DIP	Design Information Package
DPM	Design Project Manager
DQM	Distribution Quote Management system <i>An internal Western Power system</i>
HIA	Housing Industry Association
HV	High Voltage
LV	Low Voltage
MDP	Metropolitan Development Plan
UDIA	Urban Development Institute of Australia (WA Division) Inc
WAPC	Western Australian Planning Commission
WP	Western Power

Interview data

Individual representatives of 19 UDIA member organisations and 6 Western Power groups were interviewed:

- 12 Developers
- 3 Civil engineering companies
- 2 Electrical Design houses
- 2 Civil contractors
- 2 groups from Western Power Construction
- 2 groups from Western Power Design
- 2 groups from Western Power Logistics

Western Power also made possible an on-site visit to the design office and to some subdivision works currently under construction to observe some of the processes firsthand.

The interview data is compiled in a confidential appendix and, to preserve anonymity of the interviewees, is presented in three broad categories:

- Western Power (comprising Design, Construction and Logistics)
- Consultants (comprising civil engineers, designers and contractors)
- Developers

Survey data

A total of 98 surveys were distributed, 74 to UDIA members and 24 to Western Power staff. The response rate was 42% from UDIA and 88% from Western Power.

Responses were received from only two members of each of the following groups:

- Western Power Procurement
- Western Power Customer Service and Support
- Civil Contractors
- Other (identified as redevelopment authorities)

The sample size of these groups was considered too small for quantitative use, and so they were not included in the statistical data. However, comments made by these groups were included, and identified where appropriate.

4 Current Situation & Rationale for Study

In response to Western Power service levels dropping below acceptable standards for the development industry in the design and construction phases of subdivision project work, Western Power has been working with UDIA, the Housing Industry Authority and the Civil Contractors Federation during the past year to help identify opportunities for process improvement. A number of initiatives that address key areas of concern have already been implemented by Western Power, and these include:

- Appointment of a Relationship Manager to provide a single point of contact for high-level issues.
- Creation of a UDIA-Western Power Working Party.
- Centralisation of all subdivisional design work to the Jandakot office.
- Introduction of a specialised Subdivisions Branch in Distribution Design Services.
- Introduction of Project Tracker tool to assist developers and their consultants to track the progress of their project during design and construction.
- Bi-monthly subdivisions newsletter.
- Introduction of a Developers' Forum.
- Electronic submissions accepted.
- Refocussing of the Designers' Forum held every 6-8 weeks.
- Categories of non-conformance published and distributed, with one-on-one meetings with design houses to review non-conformance issues.
- Increased Delegated Financial Authority of management to reduce time taken to financially approve quotations from an average of one week to one day.
- Increased inventory investment and storage capacity.
- Alternative suppliers sourced.

Western Power has expressed its commitment to improving the level of service to the urban development industry, and UDIA members have acknowledged many recent improvement initiatives with anecdotal evidence suggesting improvements on performance of a year ago.

The UDIA Economic Impact Study (2005) reports that the total number of lots created in Western Australia in 2003/2004 amount to 16,798, with a total production value of \$2,077m. Over this period Western Power had anticipated an option A uptake of 50% against a predicted underlying demand of 8,000 lots per annum. With an actual Option A uptake of 80%, resource and material capacity was strained to the extent that serious delays were experienced.

The Network City (2004) report produced by Western Australian Planning Commission states that by 2031 the Perth and Peel population is projected to grow by 52% to 2.22m. This is expected to create the need for an additional 375,000 new homes in the area. It is therefore imperative that issues being experienced due to the development boom are addressed as soon as possible to ensure the progression of a cooperative process that serves both the development industry and the integrity of Western Australia's electrical infrastructure.

Other factors contributing to the urgency for performance improvement mechanisms are the level of consumer complaints received by builders, and the impending disaggregation of Western Power into four separate business entities.

A number of issues identified in this report are currently being addressed through the UDIA-Western Power Working Party and the UDIA Infrastructure Committee.

5 Review of Other Service Providers

As part of this study it was considered useful to examine other providers of services for the housing industry to determine if there were useful practices implemented in other areas that would be helpful for the subdivision energisation process in Western Australia.

Interstate Electricity Suppliers¹

Since 1999 there have been five power suppliers in Victoria, each operating their own network. Each organisation sets its own policies, guidelines and compliance procedures. Based on discussions held with two of these organisations, Powercor and SP AusNet (formerly TXU), the relationship between the development industry and electricity suppliers is healthy and has a culture of working together. Aside from technical committees and regular information bulletins, communication forums take place on an ad hoc basis.

In discussions held between UDIA Western Australia and UDIA Victoria, it was revealed that, while both providers were described as 'adequate' by industry members, Powercor appeared to be more favoured due to their strong customer service focus toward the industry. As such, it is suggested that Powercor could provide a suitable benchmark for WA.

Discussions held with Colin Jenkins, Manager Supply Policy, with **Powercor** in Victoria raised the following points of interest:

- Powercor publishes technical design standards for the industry.
- Design work is “contestable”, ie developers and consultants can request either Powercor or other providers to produce the designs. If external designers are used, Powercor provides system scoping and design approval. Similar to Western Australia, electrical designers are originally from the state electricity supply body. There is a shortage of people with these skills in Victoria, and few new people are entering the industry.
- Construction work is also contestable, and Powercor supplies a list of approved constructors, who have been accredited by Powercor.
- Powercor holds a quantity of materials in stock and have contracts with suppliers to ensure delivery commitments are met. It is reported that most times the customers' needs are satisfactorily met.
- The uptake of Powercor as designers and constructors is less than 50% which is a reduction from 100% pre-1999.
- Powercor maintains the responsibility of compliance monitoring to ensure the integrity of the network. An independent audit, internally and externally, is conducted for each project. The audit cost is charged to the developer, and the developer's consultant is liable for any subsequent audits due to non-compliance.
- A “statement of compliance” (referred to in WA as a “clearance”) is issued towards the end of the process – after jointing but before energisation. This initiative, tolerated

¹ It should be borne in mind that market contestability is much broader in Victoria than in WA, and should therefore not be considered as a direct comparison to Western Power.

although not entirely supported by developers, has led to a dramatic increase in the standard of installation and process conformance.

Discussions held with Bruce Bennett, Manager Distribution Customer Development, of **SP AusNet** in Victoria which supplies both electricity and gas raised the following points of interest:

- SP AusNet offers the option of a) SP AusNet doing design and construction, b) developers doing both, or c) a combination of the two. Option a) is generally selected (80%) for rural work due to accessibility; otherwise the uptake for this option is about 20% in the metro areas.
- If developers choose to undertake the works themselves, SP AusNet pay them \$1,500 per lot. If SP AusNet undertakes the works, this amount is credited to the developer upon final payment.
- Previously a bond was offered in exchange for early clearance, but this practice was considered to be of no real value, and was ceased.
- When developers undertake the works themselves there are generally no problems with the design phase; most quality issues arise with the construction, but are of a duty of care nature rather than technical (for example, uneven surfaces left).
- Supply of materials is not a problem, providing sufficient notice is given for requirements.
- SP AusNet runs accreditation programs for electrical workers, and have the authority to rescind the accreditation if necessary.
- SP AusNet has developed a short training course for electrical contractors that is run through local training institutions.
- Their relationship with the development industry is very co-operative. The industry is seen as an important stakeholder, though the homeowners are considered their main customer. Their culture is one of strong customer focus.
- The Issue of Compliance (Clearance) has been a contentious issue for some time in terms of when it is issued. SP AusNet have recently adopted a compliance process, effective from January 2007, requiring all developers to carry out the following steps before the Issue of Compliance can be obtained (typically a 24-week process):
 1. Land surveyed
 2. Assets are in the ground
 3. Jointing is completed
 4. Safety and non-conformance items have been actioned
 5. Audit and pre-commissioning completed

Water Corporation

Western Power is currently benchmarking its performance against that of Water Corporation and liaising with them to identify potential process improvements. UDIA members frequently compare performance of the two service providers, using Water Corporation as an example of good process, communication and service delivery.

During discussions with Peter Verschuer, Acting Manager Land Development at Water Corporation, the following points of interest were raised:

- Water Corporation originally carried out both design and construction of subdivision services. Then the option of the industry undertaking the construction was introduced, followed by the option of undertaking the design. Ultimately the options were phased out, with the industry becoming responsible for carrying out both design and

construction, and Water Corporation taking a role of design, quality assurance and service commissioning. This process change took place over a 15-year period.

- There is generally not a high rate of non-conforming designs, however it is currently higher than usual due to the pressure of work being experienced by the development industry.
- Water Corporation is currently exploring the introduction of an accreditation process, similar to that used in the eastern states. This would require the pre-qualification of designers; in the event of a consistent number of non-conforming designs being submitted, the qualification would be withdrawn, requiring re-qualification.
- No materials are supplied by Water Corporation, but a list of approved materials is supplied to consultants and developers. Consultants are liable for faults in construction.
- Water Corporation has developed a pipe layer's course that is offered through TAFE.
- An Urban Development Advisory Committee (UDAC) has been established to meet every two months, chaired by Water Corporation's Chief Operating Officer and comprising nine members from key organisations. Stakeholders include groups such as Western Australian Local Government Authority, Housing Industry Association, Engineers Australia, Master Builders' Association and UDIA. These meetings are used to air and discuss issues and problems arising from the service provision to the development industry.
- Water Corporation has developed a strong culture of customer service. They have put considerable effort into being a partner in the process rather than an owner of it. The customer service commitment is driven at the senior level (as demonstrated by the COO being the chair of UDAC).
- Water Corporation sees its two major customers as a) the development industry and b) consumers requiring water and waste management.
- A conscious effort has been made to have one person, a Client Consultant, to deal with a development from beginning to end. This has proved valuable in maintaining the efficiency of the process.

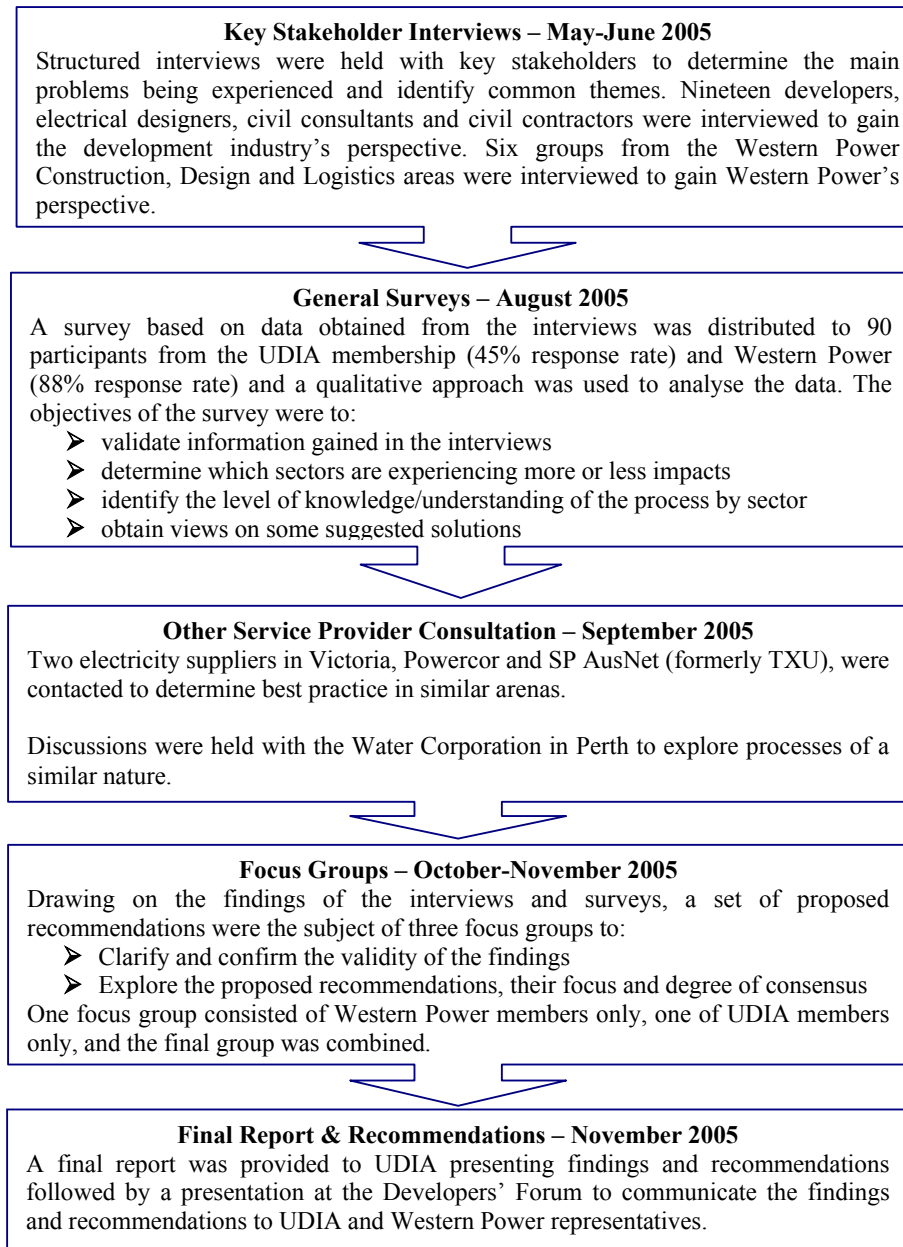
Implications for this Study

The following are key points relevant to energisation in Western Australia that arise from initial review of other service providers:

- Accreditation programs covering various aspects of electrical projects for designers and contractors are common practice in other industries and appear to have merit.
- Issuing of clearance certificates has been in most cases necessarily moved from the beginning of the process to the end, once the documented works have been undertaken.
- A partnership approach by the development industry and the service provider leads to an effective and collaborative relationship. This is achieved by a combination of agreed and shared understanding of roles, responsibilities and accountabilities and strong executive support for a cooperative approach.
- Service providers are ultimately motivated towards withdrawing as much as possible from the technical input, allowing optimum autonomy for industry members, and take a monitoring role to ensure design conformance, quality assurance and provide final commissioning.
- Delays are minimised because service providers are not responsible for the supply of approved materials.

6 Methodology

Members of UDIA and Western Power were interviewed in order to identify areas of concern and perceived causes. In addition, a survey was conducted to prioritise and validate the issues identified in the interviews and to seek further input concerning possible remedies. Finally, focus groups were conducted to assess the viability of the proposed recommendations. The steps in the methodology of this study are outlined below.



7 Summary of Key Findings

This section summarises the findings of the 25 interviews conducted and 51 surveys received, in three sections:

- Design Phase
- Construction Phase
- General Issues

Each section below describes the broad area of concern and gives a summary of the perceived causes of problems relating to this area, as they were identified during the interviews. The fact that some of these points may appear unrelated or contradictory is indicative of the **lack of shared understanding** of much of the process. A commentary is given on data analysis and interpretation relating to the information obtained.

Design Phase

Four broad areas of concern relating to the design phase were identified. They are listed in order of significance² according to those chiefly involved in this phase (Western Power Design, Electrical Designers and Civil Engineers):

- D1 Delays in getting the quote issued**
- D2 Delays in getting the DIP issued**
- D3 High rate of non-conformance of designs**
- D4 Inconsistencies with approach to design and conformance**

TABLE 7.1 SUMMARY OF KEY AREAS OF CONCERN IN DESIGN PHASE

D1 Delays in getting the quote issued
<p>This was most frequently highlighted as a serious problem in the design phase. Issuance of the quote signifies the end of the design phase, and this when considered with the broad range of perceived causes suggests that the terminology of the issue could refer to the entire design phase rather than an individual step in the process.</p> <p>Issues raised as possible causes of this problem covered inadequate human resources, lack of understanding of each other's business and a non-cooperative approach to the design process.</p> <p>88% of Western Power Design survey participants indicated that they were lacking skilled staff given their current workload, suggesting that under-resourcing in this area could be exacerbating the issue.</p> <p>The lack of understanding of each other's business is echoed in many areas of discussion, and is an issue worthy of consideration when examining the different driving forces of each party during the subdivision process. For example:</p> <ul style="list-style-type: none"> • The Developer's primary driver is to complete the process with minimal expense, both time and financial, for the benefit of their organisation and the homebuyer. • The Consultant's primary driver is to complete the process as efficiently and effectively as possible for the benefit of the organisation's continued competitiveness in the market. • Western Power's primary driver is to ensure that the integrity of the electrical network is

² Significance is based on frequency of identification and perceived degree of seriousness.

maintained to the highest standard for the benefit of future maintenance and long term safety and sustainability.

Frustrations and conflicting expectations will continue to exist unless there is, not only a shared understanding of the subdivision energisation process, but a fundamental understanding of how that process fits into the overall perspective for each player.

This area of concern will be addressed by Recommendations:

- 8.6 Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members
- 8.10 UDIA to coordinate the development of a subdivision process map and disseminate to all stakeholders in the subdivision energisation process
- 8.13 UDIA to encourage attendance of Developers at the Western Power Developers' Forum
- 8.14 Western Power to review participation at Developers' Forum
- 8.16 Western Power to review and improve facilitation and participation in Designers' Forum
- 8.17 UDIA to coordinate and implement presentation workshops for Developers, Consultants (Design and Civil) and Western Power
- 8.19 Western Power to implement a training program on the process, policies and regulations of subdivision energisation works for industry members and Western Power staff

D2 Delays in getting the DIP issued

The delay in getting the DIP issued was most frequently identified as a serious problem by Western Power Design, Civil Engineers and Electrical Designers.

The perceived causes identified by interviewees and survey participants suggest a lack of communication and shared understanding of the process. For instance, Consultants believe that Western Power begins preparing the DIP too late, and yet Western Power believes the Consultant send in the DIP application too late. Western Power provides guidelines to the Developer's Consultant for the information required in a DIP application and yet Consultants frequently submit DIP applications that do not contain all required information.

Another example of the poor shared understanding of the process requirements is illustrated when Western Power reports that often the WAPC number is not supplied with the DIP application which can cause considerable delay while endeavours are made to locate the number through different channels. Consultants' comments included "*why must Western Power wait until the WAPC number has been provided before processing the DIP?*" In summary, non-conformance with correct procedures is sometimes due to insufficient understanding of reasons for information being required and the impact it has, which results in complacency and delays.

Some Consultants acknowledged that they sometimes submit the DIP application too late, claiming the reason is that the electrical designer is appointed too late by the Developer. Consistency in timely submissions cannot be obtained unless accountability for the timely submission is correctly assigned.

This area of concern will be addressed by Recommendations:

- 8.6 Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members
- 8.11 UDIA to coordinate the production of procedures and guidelines for the subdivision energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders
- 8.16 Western Power to review and improve facilitation and participation in Designers' Forum
- 8.19 Western Power to implement a training program on the process, policies and regulations of subdivision energisation works for industry members and Western Power staff

D3 High rate of non-conformance of designs

This was significantly identified as a serious problem by Western Power Design and Electrical Designers. The design conformance rate has improved according to Western Power statistical data³, however there are concerns by all parties that there are further improvements needed in order to mitigate delays due to design non-conformance.

The interview data illustrates that both Developers and Consultants acknowledge that substandard submissions are often the cause of high non-conformance, due chiefly to pressure of workload and exacerbated by the fact that designs are frequently drawn before the DIP has been received. Western Power report that their Minimum Design Drawing Requirements are not being complied with and this alone constitutes 15%⁴ of non-conformance.

The above is not congruent with a statement given by a Developer that "*[delay in getting the quote issued is] not a compliance issue – we are not asked to resubmit designs, we are simply waiting on a quote.*" This may indicate that in some cases the Developer is unaware of non-compliance issues between their Consultants and Western Power. It is thus necessary for the Consultant undertaking electrical design work to hold accountability for submission of designs that conform to Western Power's written guidelines and specifications.

A number of the perceived causes will be addressed by procedure guidelines implementation and compliance by all parties.

Assigning the same Western Power person to both DIP and DCR processes was perceived by many to provide a solution to mitigate differences in interpretation.

Some non-conformance issues are accredited to inconsistencies inherent in the DIP and this will need to be addressed by Western Power.

This area of concern will be addressed by Recommendations:

- 8.4 Western Power to address inconsistencies within DIPs
- 8.6 Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members
- 8.11 UDIA to coordinate the production of procedures and guidelines for the subdivision energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders
- 8.16 Western Power to review and improve facilitation and participation in Designers' Forum
- 8.19 Western Power to implement a training program on the process, policies and regulations of subdivision energisation works for industry members and Western Power staff
- 8.20 Implement an accreditation program for electrical designers

D4 Inconsistencies with approach to design and conformance

This issue was identified by as a serious problem for all Electrical Designers. Statements of possible causes of this problem concerned correctly assigned accountabilities, lack of shared understanding of the process and out of date manuals.

The survey data shows that all Electrical Designers and 43% of Civil Consultants make use of the 'Underground Distribution Schemes' (UDS) manual and the 'Distribution Design Catalogue' (DDC). It is commented however that the former is "*old, badly written and lacks industry consultation*" and that the latter is "*not compatible with the DQM program and therefore causes confusion*". Some Developers refer to the publications, but the interviews highlighted that many deem it to be relevant only for their Consultants.

³ Source: The Path Forward; presentation to LandCorp Knowledge Sharing Workshop, May 2005

⁴ Source: Failure Type by Categories (June 2005) prepared by Brian Lee

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Western Power has made available to UDIA members a terminal for accessing DFIS to assist with the design process. 30% of those surveyed did not know this was available and 11% indicated that they made use of the facility.

The Designers' Forum was identified in interviews as a good opportunity to share understanding of the process. The survey confirmed that most agreed that the forum was useful, and that there are Developers, Electrical Designers and Western Power Construction staff who do not currently attend but would like to.

The interview discussions suggested that a training workshop would be useful for both Western Power and industry members to develop a common understanding of the process, its rationale and implications, thereby improving consistency and conformance. The need for training in this area was supported by the survey data which indicated that 22% of all survey participants would like training on policies, rules and regulations, and this included all of the designers surveyed.

This area of concern will be addressed by Recommendations:

- 8.6 Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members
- 8.12 Western Power to review the Underground Distribution Schemes (UDS) manual and Distribution Design Catalogue (DDC) and implement procedures to ensure optimum currency and accessibility
- 8.16 Western Power to review and improve facilitation and participation in Designers' Forum
- 8.19 Western Power to implement a training program on the process, policies and regulations of subdivision energisation works for industry members and Western Power staff
- 8.20 Implement an accreditation program for electrical designers

The following table illustrates each group's concern for D1 to D4. The survey data indicates those that identified the issue as a serious problem, and the interview data indicates those who consistently raised it as an issue.

TABLE 7.2 SUMMARY OF CONCERN BY GROUP

		D	CE	ED	CC	WP D	WP C	
D1	Delay in getting quote issued	●□	□	□		□		
D2	Delay in issuing DIP	□	●□	●□			□	
D3	Inconsistencies in approach to design & conf	□	●□	●□	●	□		
D4	High rate of non-conformance of designs	●□	●□	●□		□	●□	

D=Developers
 CE=Civil Engineer
 CC=Civil Contractor
 ED=Electrical Designer
 WPD=WP Design
 WPC=WP Construction
 ● = interview data
 □ = survey data

Construction Phase

Four broad areas of concern relating to the construction phase were identified. They are listed in order of significance according to those chiefly involved in this phase (Western Power Construction, Developers and Civil Engineers):

- C1 Delay in supply of materials**
- C2 Delay in jointing and energisation**
- C3 Frequency of design revisions during construction**
- C4 Lack of adequate process and compliance**

TABLE 7.3 SUMMARY OF KEY AREAS OF CONCERN IN CONSTRUCTION PHASE

C1 Delay in supply of materials			
This was identified as the second most serious problem overall. Developers rated this as their most serious problem; Western Power Construction, Civil Engineers and Design Consultants rated it as a serious problem.			
Statements concerning possible causes covered a range of issues such as global shortages and increased demand, inadequate forecasting of requirements, Western Power's degree of control in the supply of materials and their involvement in the construction phase.			
Many UDIA members acknowledge that the supply of materials has improved in recent times, particularly since the introduction of the Working Party meetings.			
Inadequate forecasting by Western Power was consistently identified as one of the key contributors to the problem.			
When asked in the survey how far in advance of the DIP application materials requirements were known, the following responses were given by industry members:			
	Developer	Civil/Eng	Electrical Designer
1-2 weeks	7%	43%	67%
2-4 weeks	13%		33%
1-2 months		28%	
2-6 months	33%		
6-12 months	7%		
Not relevant	40%	29%	
The high rate of 'not relevant' responses would suggest that this information is not being recognised by developers as an opportunity to mitigate potential delays. Western Power staff report that notification of material requirements is currently being given 1-14 days in advance, and yet 40% of Developers claim to be aware of material requirements more than 2 months in advance. These observations suggest that delays could be alleviated if communication in this respect was to occur between developers and their consultants at a much earlier stage. Western Power recognises this as an important factor in their overall procurement strategy.			
While global shortages of raw material is acknowledged, discussions with eastern states electricity suppliers (see item 5, discussion with Powercor and SP AusNet) indicate that they are being faced with a similar development boom, but are not experiencing problems with the supply of materials, stating that " <i>as long as planning is undertaken, materials are not an issue for us.</i> " Both service providers only procure materials for their own maintenance or works requirements. Developers undertaking the works themselves do not rely on the service provider for any of the materials.			

With the current uptake of Option A at around 80% and the current level of development predicted to continue for some years, issues such as inadequate storage and funds for stockpiling are likely to continue.

This area of concern will be addressed by Recommendations:

- 8.1 Western Power to investigate the viability of phasing out their role in the construction phase of subdivision energisation
- 8.3 Western Power to review approved materials and suppliers lists
- 8.5 Western Power to appoint dedicated forecasting staff to determine future material and capacity requirements
- 8.6 Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members
- 8.11 UDIA to coordinate the production of procedures and guidelines for the subdivision energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders
- 8.13 UDIA to encourage attendance of Developers at the Western Power Developers' Forum
- 8.14 Western Power to review participation at Developers' Forum

C2 Delay in jointing and energisation

Jointing and energisation, while being two separate issues, were frequently referred to in interviews as part of the same piece of work. Civil Engineers rated energisation (100%) and jointing (71%) as a serious problem. 38% of Developers rated energisation as a serious problem and only 13% considered jointing a serious problem. Western Power Construction (56%) rated energisation as a serious problem, but did not rate jointing as serious at all.

Statements concerning possible causes of these delays concerned not enough skilled workers, lack of materials, re-working of trenches, replacement of cables due to theft on site and poor communication between relevant parties.

Western Power Construction employees were unaware that jointing was perceived as a serious problem by the industry, advising that once they are informed that cables have been trenched, the jointing work is given priority and takes place in a matter of days.

The filling in of the trenches before the jointing work is done is a cause of much angst, time and cost to both parties and appears to have become a procedural norm in the absence of a shared understanding of process requirements. Explanations as to why trenches are filled range from "so the developer can get council clearance" to "there's a problem getting jointers". Developers point out that if they are notified of the correct timeframe they can plan accordingly.



Theft of exposed cable from site is a substantial problem for Western Power, and one that imposes considerable cost and time delays that could be overcome by coordinated trenching and jointing. The problem of theft was not commented on by UDIA members either in interviews or in the survey comments, which suggests they may be unaware of it. A clarified and shared understanding of this part of the process is required by all parties.

Electrical cable that has been cut and stolen from a northern subdivision site. Cable is left exposed and unguarded for a considerable time before jointing is undertaken.

This area of concern will be addressed by Recommendations:

- 8.2 Western Power to issue WAPC clearance certificate only once construction work is complete
- 8.6 Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members
- 8.11 UDIA to coordinate the production of procedures and guidelines for the subdivision

energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders

8.18 Western Power to step up current training and implement accreditation for electrical LV jointers and cable layers

C3 Frequency of design revisions during construction

This was identified most consistently, along with delay in energisation, as a serious problem by Western Power Construction (56%) and Design (75%). 67% of Electrical Designers surveyed identified it as a serious problem. Only 18% of Developers and no Civil Engineers considered this a serious problem.

These figures, together with statements concerning possible causes, suggest a lack of industry's understanding of the impact that revisions during construction have on Western Power and their consequent effect on overall delays. Revisions at this stage require re-work by Western Power Design, compound the problems identified in the design phase, and can add considerably to the delays experienced.

This area of concern will be addressed by Recommendations:

- 8.6 Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members
- 8.7 UDIA to coordinate Developers to address the issues arising from revisions to designs whilst under construction
- 8.11 UDIA to coordinate the production of procedures and guidelines for the subdivision energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders

C4 Lack of adequate process and compliance

This was identified as a serious problem by all but Civil Engineers. Western Power Design and Electrical Designers identified it as a serious problem more frequently than Western Power Construction.

Most statements concerning possible causes relate to inadequate communication, lack of full and shared understanding of the correct procedures and inconsistent procedural compliance.

The start-up meeting was frequently mentioned in interviews as being poorly attended. The survey indicated however that the meeting was considered useful by all parties. Western Power pointed out that the Developers' Consultants do not always attend pre-start meetings but send the Contractor (cable layer) as the default project manager; the Consultants commented that they do not know why they are expected to attend and that it is Contractor rather than themselves who needs to attend. The following diagram shows the response rate concerning attendance at the pre-start meeting.

PRE-START MEETINGS	WP Design	WP Constr	Developer	C/Eng	Designer	Total
Do not attend	100%	78%	59%	29%		61%
Do not attend but would like to			12%			5%
Attend		11%	18%	57%	67%	23%

While the majority of people surveyed believe that the start-up meeting is the responsibility of the Developer's Consultant (Civil Engineer), the following table illustrates that there is a great deal of confusion concerning who has responsibility for calling and setting the objectives of the meeting. This would suggest that the purpose and intent of the meeting is also not clear to all.

Joint Study By UDIA and Western Power Subdivision Process Review

PRE-START MEETINGS	WP Design	WP Constr	Developer	C/Eng	Designer	Total
Responsibility of Western Power	25%	11%	24%	14%	33%	20%
Responsibility of Developer	63%	22%				16%
Responsibility of Consultant	13%	67%	71%	86%	67%	61%
Don't Know			6%			2%

Not having a Project Manager appointed to each subdivision project was frequently identified as a cause of ineffective communication and process. Concerning this issue, the survey provided the following information:

My organisation assigns a Project Manager to each subdivision project we undertake:

	WP Design	WP Constr	Developer	C/Eng	Designer	Total
Yes	100%	78%	82%	86%	67%	84%
Sometimes, but not always			12%	14%	33%	9%
No			6%			2%
Don't Know		22%				5%

These results indicate that Project Managers are assigned in most cases, but internal process compliance may need to be audited, particularly for those sectors that responded other than yes.

Focus group discussions identified that there was some confusion concerning the term "project manager". For this reason, recommendations refer to a "project coordinator", being a generic term referring to the person appointed to coordinate a given project.

This area of concern will be addressed by Recommendations:

8.6 Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members

8.11 UDIA to coordinate the production of procedures and guidelines for the subdivision energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders

8.15 Western Power to introduce a Project Coordinators' Forum

The following table illustrates each group's concern for C1 to C4. The survey data indicates those that identified the issue as a serious problem and the interview data indicates those who consistently raised it as an issue.

TABLE 7.4 SUMMARY OF CONCERN BY GROUP

		D	CE	ED	CC	WP D	WP C	
C1	Delay in supply of materials	●□	●□	●□	●	□	●□	
C2	Delay in jointing and energisation	●□	●□	□	●	□	●□	
C3	Frequency of design revisions during construction	□		□		□	●□	
C4	Lack of adequate process and compliance	□		□	●	□	□	

D=Developers
 CE=Civil Engineer
 CC=Civil Contractor
 ED=Electrical Designer
 WPD=WP Design
 WPC=WP Construction
 ● = interview data
 □ = survey data

General Issues

Four broad areas of concern relating to the process in general were identified.:

- G1 Lack of skilled staff and training**
- G2 Ineffective communication between all parties**
- G3 Inadequate forecasting**
- G4 Cultural issues**

TABLE 7.5 SUMMARY OF KEY AREAS OF CONCERN IN GENERAL

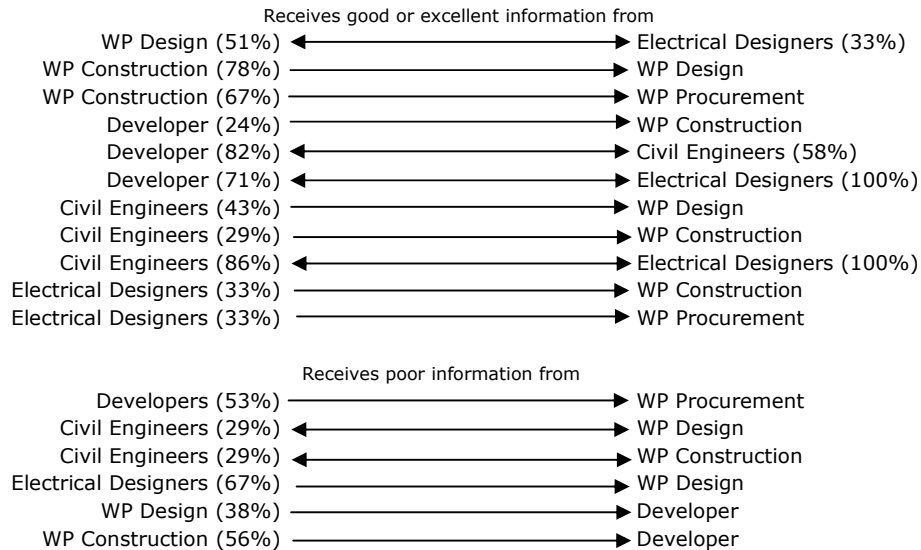
G1 Lack of skilled staff and training for the overall industry								
This was identified most frequently as a serious problem by Western Power Design. It was also identified as a serious problem by Electrical Designers, Civil Engineers and Developers.								
Statements concerning possible causes of problems in this area focussed on insufficient staff throughout the industry to deal with the demands of the development boom coupled with insufficient quantity of people entering into the industry.								
Collected data illustrates that 67% of industry members believe that they are inadequately staffed considering the current volume of work. 88% of Western Power Design but only 22% of Western Power Construction believe they are inadequately staffed. The majority of Electrical Designers believe their staffing level is adequate.								
		WP Design	WP Constr	Total	Developer	C/Eng	Designer	Total
Adequate		13%	78%	47%	18%	29%	67%	26%
Inadequate		88%	22%	53%	71%	71%	33%	67%
Interview data suggests that many believe there is a necessity for training for both industry members and Western Power staff.								
In addition to insufficiencies in the quantity of technically skilled workers, the need was identified for those currently in the industry to be offered further training on prevailing processes and regulations. The survey questioned participants on areas in which they would like more training. The results can be summarised, in order of popularity, as follows:								
<u>UDIA members</u>				<u>Western Power staff</u>				
Construction phase process (27%)				Policies, rules and regulations (19%)				
Policies, rules and regulations (20%)				Whole subdivision process (14%)				
Electrical design phase process (13%)				Electrical design phase process (5%)				
Construction phase technical aspects (13%)				Electrical design technical aspects (7%)				
Whole subdivision process (10%)								
Electrical design phase technical aspects (7%)								
<i>This area of concern will be addressed by Recommendations:</i>								
8.15 Western Power to introduce a Project Coordinators' Forum								
8.18 Western Power to step up current training and implement accreditation for electrical LV jointers and cable layers								
8.19 Western Power to implement a training program on the process, policies and regulations of subdivision energisation works for industry members and Western Power staff								
8.20 Implement an accreditation program for electrical designers								
G2 Ineffective communication between all parties								

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There was widespread acknowledgement that communications have improved substantially in recent times, with the introduction of the UDIA-Western Power Working Party, the Designer and Developer Forums and a number of other Western Power initiatives.

However, lack of effective communication was still identified as a serious problem by all parties during the interviews and in the survey.

The survey explored the perceived quality of information received from other parties. The following summary indicates responses greater than 20%:



The survey data identified that the Developers' Forum is considered useful by all parties and that more Developers, Civil Engineers and Western Power staff who are currently not attending would like to attend. The Designers' Forum was considered useful for those involved in the design phase, and a number others, including Developers and Civil Engineers indicated that they do not currently attend but would like to.

DESIGNER'S FORUM	WP Design	WP Constr	Developer	C/Eng	Designer	Total
Do not attend	25%	67%	59%	71%		52%
Do not attend but would like to	13%	11%	18%	29%		16%
Attend	63%	11%			67%	18%

DEVELOPER'S FORUM	WP Design	WP Constr	Developer	C/Eng	Design er	Total
Do not attend	25%	33%	24%	43%	33%	30%
Do not attend but would like to	50%	33%	24%	14%		27%
Attend	25%	11%	35%	43%	67%	32%

The online Project Tracker has proved useful for engineers during the design phase. The integration of the construction phase into the system has been eagerly anticipated, and this has been implemented since the interviews and surveys for this report were conducted. Developers appear to be largely unaware of Project Tracker and its accessibility, and some claim that it is of interest to the Consultants rather than Developers.

Comments made in interviews and surveys iterated a lack of industry consultation when designing new systems, procedures, policies and documentation, asserting that this would ensure that new arrangements were understandable and workable for all concerned, and allow for competing regulations governing the industry to be considered. Also raised was the

inadequate understanding that Developers, Consultants and Western Power have of each other's role in the broader context, leading to insensitivity to the implications and impacts that the subdivision energisation process has on other areas of their business.

This area of concern will be addressed by Recommendations:

- 8.9 Western Power to review membership and function of the UDIA-Western Power Working Party
- 8.10 UDIA to coordinate the development of a subdivision process map and disseminate to all stakeholders in the subdivision energisation process
- 8.11 UDIA to coordinate the production of procedures and guidelines for the subdivision energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders
- 8.13 UDIA to encourage attendance of Developers at the Western Power Developers' Forum
- 8.14 Western Power to review participation at Developers' Forum
- 8.15 Western Power to introduce a Project Coordinators' Forum
- 8.16 Western Power to review and improve facilitation and participation in Designers' Forum
- 8.17 UDIA to coordinate and implement presentation workshops for Developers, Consultants (Design and Civil) and Western Power

G3 Inadequate forecasting of material requirements

Statements concerning possible causes of this problem included Western Power not using preliminary documents as forecasting tools; industry not providing Western Power with forecasting figures and predications of option A/B uptake; and not enough Western Power staff. There is uncertainty around how, and by who, forecasting needs to be undertaken, suggesting the need for consultation between Developers and Western Power to identify tools, mutually acceptable timing and appropriate responsibility. Western Power recognises this as an important factor in their overall procurement strategy.

During interviews, the Metropolitan Development Plan was identified as a reasonably accurate tool to be used for materials forecasting, as were the concept plans, structure plans and DPI annual forecasts. Information presented under C1 illustrates that Developers are able to project their materials requirements at a time much earlier than when Western Power currently receives advice, which is when the order is placed.

Eastern states service providers indicated that they do not experience problems concerning forecasting, since the majority of their customers utilise a process equivalent to Western Power's Option B, whereby the client undertakes all construction works and the service provider is only responsible for quality assurance and final energisation. In cases where the eastern states provider undertakes construction, forward consultation initiated by the Developer mitigates any delay in procurement.

This area of concern will be addressed by Recommendations:

- 8.1 Western Power to investigate the viability of phasing out their role in the construction phase of subdivision energisation
- 8.5 Western Power to appoint dedicated forecasting staff to determine future material and capacity requirements
- 8.11 UDIA to coordinate the production of procedures and guidelines for the subdivision energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders

G4 Cultural Issues

The difference in internal organisational cultures and, in particular, the different way that Western Power and property developers view customers and the energisation process was identified as an important factor. The following table shows the different perceptions as to who is considered to be 'the customer':

Joint Study By UDIA and Western Power Subdivision Process Review

Question: Who do you see as your customer?

	WP Design	WP Constr	WP Procure	WP Cust serv
Homeowner	63%	67%		100%
Civil Consultant	88%	44%	50%	50%
Developer	88%	100%	100%	100%
Other*	13%	11%	100%	50%

* 'Other' includes: (a) anyone affected by or involved in Perth's development,
(b) Western Power Design and Construction, and (c) builders

	Developer	C/Eng	Designer
Homeowner	100%	14%	33%
Civil Consultant	6%		67%
Developer	12%	100%	100%
Other	18%		33%

* 'Other' includes: (a) other service authorities, (b) local councils and (c) builders

The above illustrates that while the Developer is most frequently identified as the customer, the homeowner and the Civil Consultant are equally viewed as a key customer. 'Customer service' will hold different expectations for each customer group and therefore require different management strategies.

The current boom in the development industry has led to an increase in the degree of involvement of Western Power, Developers and Consultants. This, in conjunction with over-taxed resources, would suggest a proactive (rather than reactive or accommodative) customer management strategy is required by all organisations involved in the development industry.

This area of concern will be addressed by Recommendation:

- 8.17 UDIA to coordinate and implement presentation workshops for Developers, Consultants (Design and Civil) and Western Power
- 8.21 Western Power to progress its move to a customer service driven culture by implementing a customer service improvement program to be initiated and strongly supported by senior executive

The following table illustrates each group's concern for G1 to G4. The survey data indicates those that identified the issue as a serious problem, and the interview data indicates those who consistently raised it as an issue. It should be noted that items G3 and G4 were not specifically addressed by the survey.

TABLE 7.6 SUMMARY OF CONCERN BY GROUP

		D	CE	ED	CC	WP D	WP C
G1	Lack of skilled staff and training	●□	□	□		□	●
G2	Ineffective communication between all parties	●□	●□	●□	●	□	●□
G3	Inadequate forecasting	●	●				●
G4	Cultural issues	●		●	●		

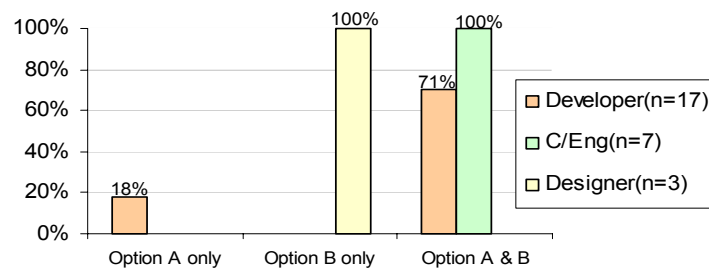
D=Developers
 CE=Civil Engineer
 CC=Civil Contractor
 ED=Electrical Designer
 WPD=WP Design
 WPC=WP Construction
 ● = interview data
 □ = survey data

Option A / Option B

The interview data revealed much debate concerning the works options on offer by Western Power. UDIA members expressed a similar preference for both options and believe that Western Power prefers them to use option A. Western Power expressed a preference for option B uptake and believe that UDIA members prefer to use option A.

Survey respondents were asked respondents which of the following statements they most agreed with:

- a) Western Power should offer only option A
- b) Western Power should offer only option B
- c) Western Power should continue to offer both option A and B



However, the above figures should be read in conjunction with the following observations provided by the same question:

- Developers commented that “option B would be fine if materials could be guaranteed to be available upon request.”
- 10% of Developers interviewed were unsure of what the difference is between options A and B.
- Civil Engineers commented that “...when the issues are resolved, many projects should be able to proceed as option B.”
- The primary reason given by Developers for option A preference concerns the lower cost
- The primary reason given by Developers for option B preference concerns flexibility with sourcing materials.
- Early clearance was cited as a reason for preference of both options, suggesting different perceptions for different people.

There is widespread concern that Western Power has too much involvement in terms of control and technical input in the subdivision energisation process, particularly in view of the resourcing and supply problems currently being experienced, the impending disaggregation of Western Power, and the development growth rate predicted for Perth. The industry has expressed a desire for more autonomy in the process.

Western Power reports that the original intention for the introduction of option B was to ultimately phase out option A to alleviate Western Power’s work load in the subdivision process.

Electricity service providers in the eastern states and the Water Corporation in WA describe a process where they take a protracted role of ensuring design conformance, quality assuring construction work and final commissioning. This is a model favoured for Western Power to adopt by many interviewees and survey participants, and one that could be achieved by phasing out option A and ensuring that the remaining process addresses the needs of both Developers and Western Power.

This issue will be addressed by Recommendation:

- 8.1 Investigate the viability of phasing out Western Power’s role in construction

8 Recommendations

Based on the findings of this study, the following recommendations are proposed. These recommendations should be considered in conjunction with the narrative of the issues they address, detailed in section 7.

PROCESSES AND POLICY

8.1 Western Power to investigate the viability of phasing out their role in the construction phase of subdivision energisation

Addresses areas of concern C1 and G3

The industry has identified a need for Western Power to retain a role of design approval, quality assurance and final switching, while allowing the industry to take control and responsibility for the construction work, including sourcing of materials. This is a model used by some electricity providers in Victoria and also by the Water Corporation in WA. This recommendation implies the phasing out of Option A, and associated issues to be considered will include:

- Clarification and transparency of different ‘Options’ offered to industry.
- Impact of Recommendation 8.2 concerning the issue of clearance certificates after construction work is completed.
- A genuine diversity in materials and suppliers (see Recommendation 8.3).
- Comments to be invited from industry and concerns to be addressed prior to implementation.

Responsibility: Western Power with assistance from UDIA

Recommended time to implementation: January 2006

The findings of this recommendation will ultimately affect recommendations 8.5, 8.6 and 8.7 in that they would be negated or significantly diminished in their scope.

8.2 Western Power to issue WAPC clearance certificate only once construction work is complete

Addresses area of concern C2

This practice is undertaken successfully by some service providers in Victoria who report that, following initial dissatisfaction from Developers, ultimate quality of service was improved substantially. This will surmount the issue of trenches being re-worked and mitigate delays in energisation and resulting inconvenience to homeowners. Issues to be considered will include:

- Inviting comment from industry to determine their concerns.
- Consultation with Department of Planning and Infrastructure.
- A clear shared understanding that all construction works, up to energisation, is the responsibility of the Developer (or Developer’s Consultant) and that jointing work may be completed by qualified sub-contractors (this does not apply to the current option A where jointing is undertaken by Western Power).
- Consideration of the implications for bonding under the current options.
- Addressing industry’s concerns and clear communication to all stakeholders of the new process.
- Clarification of whether “construction work” includes both cable laying and jointing (in this regard, issues discussed under C2 in section 7 need to be given full consideration).

Responsibility: Western Power

Recommended time to implementation: March 2006

8.3 Western Power to review approved materials and suppliers lists

Addresses area of concern C1

The industry's concerns must be addressed in relation to limitations on approved materials and/or suppliers, particularly in relation to cable and transformers. The review will invite comment from industry members on the existing process for the approval of alternative equipment, and limitations will be rationalised and articulated to mitigate conflict and misunderstanding. The reviewed lists will provide clarity and transparency and be disseminated to the industry.

Responsibility: Western Power

Recommended time to implementation: March 2006

8.4 Western Power to address inconsistencies within DIPs

Addresses area of concern D3

Western Power Design staff have acknowledged that there may be inconsistencies within DIPs, largely due to the system's evolutionary nature. These inconsistencies will be clarified in consultation with electrical designers and addressed as a matter of priority. Western Power will incorporate the improvements in the design documentation.

Responsibility: Western Power

Recommended time to implementation: March 2006

8.5 Western Power to appoint dedicated forecasting staff to determine future material and capacity requirements

Addresses areas of concern C1 and G3

This may be in the form of an external consultant or agency, or utilise internal resources. A review of tools such as structure plans, concept plans, Metropolitan Development Plan and DPI annual forecasts will be undertaken, in collaboration with Developers, to determine the most effective information sources. Developers to be informed of established future procedures concerning how to direct their own forecasts to Western Power.

Responsibility: Western Power

Recommended time to implementation: June 2006

The findings of recommendation 8.1 may alter the scope of this recommendation

8.6 Western Power to establish consistency in procedures for both design and construction phases and expedite the dissemination of these procedures to industry members

Addresses areas of concern D1, D2, D3, D4, C1, C2, C3 and C4

A procedure audit will be undertaken to uncover discrepancies, misunderstandings and non-compliance with current procedures, and to improve coordination between the design and construction phases. This, in consultation with stakeholders, will be used to establish clear and agreed procedures and timeframes and will include:

- Addressing inconsistent interpretation between DIP and DCR personnel
- Methods to document any verbal approvals for deviation from standards allowed by Western Power
- Regulations regarding design revisions while under construction.
- Coordination with overhead crews.

- Communication of internal and external procedure compliance requirements.
- A process for continued evaluation and communication of updates.

Responsibility: Western Power

Recommended time to implementation: June 2006

The findings of recommendation 8.1 may alter the scope of this recommendation

8.7 UDIA to coordinate Developers to address the issues arising from revisions to designs whilst under construction

Addresses areas of concern C3 and G2

Revisions under construction have been shown to cause considerable re-work for both Western Power Construction and Design and give rise to additional delays in finalising a project. A cooperative approach by all parties to this issue will ensure that Developers are well informed of the implication and impact of such revisions to the overall timeframe, so they may plan accordingly. A review of current procedures will require consultation with Western Power to determine an effective approach to this issue, which will be reflected in the guideline document to be developed under recommendation 8.15.

Responsibility: UDIA with assistance from Western Power

Recommended time to implementation: March 2006

The findings of recommendation 8.1 may alter the scope of this recommendation

GOVERNANCE

8.8 UDIA and Western Power to monitor the implementation of recommendations in this report

A proactive coordination role by UDIA will ensure widespread implementation, maintain momentum and provide a central reference point for monitoring and communicating progress.

Responsibility: UDIA and Western Power

Recommended time to implementation: January 2006

8.9 Western Power to review membership and function of the UDIA-Western Power Working Party

Addresses areas of concern G2

The Working Party is acknowledged by all stakeholders as a successful initiative for improving communications, addressing issues and providing the appropriate level of governance. In order to ensure a full 360 degree communication process that can provide relevant information to other sub-committees and forums, the membership will be reviewed to determine optimal membership, which should include appropriate representation from:

- Western Power Senior Executive
- Western Power Design, Construction and Procurement
- Civil Engineers
- Civil Contractors Federation (CCF)
- Urban Development Industry Association (UDIA)
- Housing Industry Authority (HIA)
- Master Builders Association (MBA)
- LandCorp
- Western Australian Planning Commission (WAPC)

Consideration will be given to appropriate representation from those identified, which may include attendance on special invitation for those who may only be required only when specific issues are to be discussed.

Responsibility: Western Power with assistance from UDIA
Recommended time to implementation: February 2006

DOCUMENTATION

8.10 UDIA to coordinate the development of a subdivision process map and disseminate to all stakeholders in the subdivision energisation process

Addresses areas of concern D1 and G2

The process map would involve all elements of the subdivision process, from feasibility to sale of lots and would help all stakeholders in their understanding of the subdivision process from the Developer's perspective. The map will provide a simplified snapshot of the entire process and timeframe and enable Consultants and Western Power to develop a fuller understanding of the demands, time pressures and other complexities which ultimately affect and are impacted on by the energisation process. A shared understanding of this process will help to foster a cooperative and collaborative approach.

Responsibility: UDIA with assistance from Western Power
Recommended time to implementation: March 2006

8.11 UDIA to coordinate the production of procedures and guidelines for the subdivision energisation works in consultation with Developers, Civil Engineers, Electrical Designers, Civil Contractors, Western Power and other stakeholders

Addresses areas of concern D2, D3, C1, C2, C3, C4 and G2

A set of guidelines from an industry perspective, developed in consultation with all stakeholders will ensure the mitigation of delays, unnecessary costs and inconvenience. (*The Property Development Process* by Reynolds & Solomon provides a suitable structure for such a document). The purpose of this document will be to clarify responsibilities and accountabilities for each step in the process. Included in the procedures will be:

- Communication of projected materials requirements to Western Power at least two months in advance of the DIP application.
- Earliest submission of DIP application to Western Power to ensure projects are not delayed.
- Assignment of Project Coordinator for each subdivision project to clarify appropriate communication channels for each subdivision project.
- Appropriate timeframe for appointing of electrical designers.
- Provision to electrical designers of all information required for the DIP application including the WAPC conditions, the Developer's Project Coordinator, and the overall development or concept plan.
- Ongoing provision to electrical designers of updated information relating to the project (eg civil design or landscaping changes).
- Timing, objectives and attendance requirements for pre-start meetings. It is anticipated that full attendance at the pre-start meetings would help avoid confusion, misunderstanding and delay in the construction phase. Consultation is required with Consultants and Western Power will establish clear objectives and guidelines for these meetings.
- Coordination of cable laying and jointing. This part of the process is currently uncoordinated and, as a result, gives rise to delay, misunderstanding and theft of

cable. (Note that a formal cable handover process is currently being implemented by Western Power).

- Review and evaluation of procedures.

Responsibility: UDIA

Recommended time to implementation: June 2006

8.12 Western Power to review the Underground Distribution Schemes (UDS) manual and Distribution Design Catalogue (DDC) and implement procedures to ensure optimum currency and accessibility

Addresses area of concern D4

These documents are identified as integral tools for all parties. It is acknowledged that they are in need of regular updating, and a review has been commissioned. The review of the documents will include an opportunity for comment by industry users, and a process of distribution will be implemented to ensure that users have access to latest revisions – this will include notification via publications such as the CCF magazine and WPC/UDIA bulletin.

Responsibility: Western Power

Recommended time to implementation: June 2006

COMMUNICATION

8.13 UDIA to encourage attendance of Developers at the Western Power Developers' Forum

Addresses areas of concern D1, C1 and G2

There is a demonstrated need for improved communication and a shared understanding across the industry and with Western Power. Forum attendance must be regular and well subscribed if it is to be effective. Iteration is required concerning the objectives of the forum and the requirement for attendees to represent the collective views and input of their organisations, and ensure that outcomes are communicated to their organisation as a whole.

Responsibility: UDIA with assistance from Western Power

Recommended time to implementation: January 2006

8.14 Western Power to review participation at Developers' Forum

Addresses areas of concern D1, C1 and G2

Methods of meeting notification to be reviewed to ensure maximum distribution to Developers as a broader attendance will ensure a broader input and shared understanding. A review will be undertaken to determine whether extending the participation to Civil Engineers and Western Power Design and Construction members would affect a barrier or a benefit to the outcomes of the forum. Objectives of the forum to be clearly defined to invitees. Expert facilitation is required to ensure that objectives are met, all members are heard and consensus is reached.

Responsibility: Western Power

Recommended time to implementation: February 2006

8.15 Western Power to introduce a Project Coordinators' Forum

Addresses areas of concern C4, G1 and G2

The role of the Developer's project coordinator is critical to the smooth completion of a project, and can be instrumental in identifying process improvement opportunities. Western Power will initiate a quarterly forum tailored to Developers' project coordinators which will provide a regular platform to discuss performance and review improvements.

Responsibility: Western Power with assistance from UDIA

Recommended time to implementation: February 2006

8.16 Western Power to review and improve facilitation and participation in Designers' Forum

Addresses areas of concern D1, D2, D3, D4 and G2

Objectives of the forum will be clearly defined to the industry. Expert facilitation is required at these meetings to ensure that objectives are met, all members are heard and consensus is reached.

Responsibility: Western Power

Recommended time to implementation: February 2006

8.17 UDIA to coordinate and implement presentation workshops for Developers, Consultants (Design and Civil) and Western Power

Addresses areas of concern D1 and G2 and have a positive impact on all other issues

The purpose of these workshops will be to foster an attitude of partnership where each party will provide an overview of their industry, including their obligations, values, customers, and how the subdivision energisation process fits in to their overall business. This process will provide each party with a fuller understanding of the work of each other, and how the subdivision energisation process presents a different relevance and perspective to each. In this way a more cooperative and collaborate "partnership" can be established. The presentation workshops will be repeated every two years and be available to all interested stakeholders.

Responsibility: UDIA with assistance from Western Power

Recommended time to implementation: March 2006

Recommended funding: UDIA and Western Power

ACCREDITATION AND TRAINING

8.18 Western Power to step up current training and implement accreditation for electrical LV jointers and cable layers

Addresses area of concern C2

In the absence of unlimited construction resources for subdivision work, times of heavy workload can strain Western Power resources and cause delays. External electrical workers trained in subdivision jointing would alleviate this and establish a larger pool of sub-contractors. Power Training Services currently offers a training course for electrical jointers, implementation of which needs to be stepped up in order to increase enrolments and create in the marketplace a substantially increased pool of sub-contractors available for LV jointing work. Elements to be considered in this respect will include:

- Exploration of collaboration between Western Power's Power Training Services and other training providers to establish an increased intake capacity.
- Consultation with eastern states service providers who have implemented a similar program through local training institutions.
- Comment to be invited from CCF prior to implementation
- Recognition of prior learning

Responsibility: Western Power with assistance from CCF
Recommended time to implementation: June 2006

8.19 Western Power to implement a training program on the process, policies and regulations of subdivision energisation works for industry members and Western Power staff

Addresses areas of concern D1, D2, D3, D4 and G1

This course will be offered on an ongoing basis to ensure currency and to cater for new entrants into the industry. The duration and scope of the training program will be determined in consultation with industry members. The training program will provide a database for communicating process, policy and regulation updates and amendments.

Responsibility: Western Power with assistance from UDIA
Recommended time to implementation: December 2006
Recommended funding: Western Power (supported by UDIA and a cost recovery strategy through the fee structure)

8.20 Implement an accreditation program for electrical designers

Addresses areas of concern D3, D4 and G1

In addition to certifying technical skills, this program will ensure that Designers' knowledge of procedures and regulations are current. The program will not include technical training, but will verify qualifications such as the NPER3. Once accredited, Western Power will have authority to rescind the accreditation if conformity standards are repeatedly not met. A similar program is operating successfully in the energy supply industry in Victoria, and is currently being explored by the Water Corporation in Western Australia. An accreditation program would help to ensure compliance with DIP application requirements, conformance to subdivision design drawing minimum requirements, and shared understanding of overall expectations. It will also assist in maintaining a current database of designers for the convenience of Western Power and Developers. Elements to be considered in the development of this program will include:

- Scope of accreditation required, such as individual and/or organisational accreditation; Western Power staff involved in Design Information Package and Design Conformance Review.
- Cost of accreditation to ensure that no eligible individual or organisation is prohibited due to lack of financial resources.
- Comment to be invited from Electrical Designers prior to finalisation and implementation with the assistance of UDIA.
- Consultation with other service providers operating with a similar program.

Responsibility: Western Power with assistance from UDIA
Recommended time to implementation: December 2006

CUSTOMER SERVICE

8.21 Western Power to progress its move to a customer service driven culture by implementing a customer service improvement program to be initiated and strongly supported by senior executive

Addresses area of concern G4

The 'Customer Service Excellence' strategy to be supported by an internal cultural change strategy. Research indicates that successful cultural transformational change must be driven from the top of an organisation in a structured and consistent manner. The Water Corporation and SP AusNet report successful cultural transformation from a history similar to Western Power in terms of size, technical orientation, etc. These organisations will provide case study material in implementing a transformational change program. Specific steps will include:

- Appointment of a Customer Service Improvement Team
- A comprehensive analysis of current cultural norms around customer service and attitude
- Development of customer management strategies aligned to the differing customer groups
- Implementing a customer service training program for all employees

Responsibility: Western Power

Recommended time to implementation: June 2006

9 Conclusion

This report has shown that the boom in the Western Australian property industry has resulted in considerable pressure on Western Power's energisation resources and staff to provide services at a level expected by Western Australian property developers. While Western Power has instituted a number of improvements over the past year, there is still considerable room for improvement.

This study shows that areas of considerable concern still existing are:

- Delay in getting the quote issued
- Delay in issuing the Design Information Package (DIP)
- Inconsistencies in approach to design and conformance
- High rate of non-conformance of designs
- Delay in supply of materials
- Delay in jointing and energisation
- Frequency of design revisions during construction
- Lack of adequate process and compliance
- Lack of skilled staff and training
- Ineffective communication between all parties
- Inadequate forecasting
- Cultural issues

The study also shows that there is a considerable degree of confusion concerning responsibilities, procedures and information required.

This report proposes 21 recommendations, with the major references including:

- Processes and policy
- Governance
- Documentation
- Communication
- Accreditation and training
- Customer service

It is now vital that UDIA and Western Power circulate these recommendations to key stakeholders, make a decision to accept or reject them, and then determine the responsibility and timeframe for those recommendations accepted.

The provision of efficient, high quality energisation services is important to the Western Australian property development industry. It was apparent throughout this study that Western Power staff and UDIA members are passionate and keen to find solutions to improve the energisation services. We are certain the recommendations proposed here, combined with the commitment of all stakeholders, will go a long way in making the Western Australian property development industry a model of success.

*"We can't solve problems by using the same kind
of thinking that created them."*

~ Albert Einstein

10 References

The following publications were used for reference in conducting this study:

Reynolds H. & Solomon, P. 1998. *The Property Development Process: Western Australia*, Victor Publishing Consultants, Western Australia.

Urban Development Institute of Australia, *Economic Impact Study: Economic Contribution of the Land Development and Residential Construction Industry in Western Australia*, April 2005.

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Western Australian Planning Commission, *Network City: Community Planning Strategy for Perth and Peel*, September 2004.

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Western Power Corporation, *The Path Forward*, presentation to LandCorp Knowledge Sharing Workshop, May 2005.

Western Power Corporation, *Annual Report 04*.

11 About the Consultants

The Integral Leadership Centre (ILC) is owned by the University of Western Australia, and sits under the auspices of the Graduate School of Management. ILC conducts its activities as part of an alliance formed between UWA's Graduate School of Management and the Australian Institute of Management WA.



The ILC seeks to develop leaders and managers who make a significant contribution to their organisations and their society. We are involved in the delivery of services to people from different cultures and strongly support an approach that acknowledges different cultural backgrounds and skills. The ILC provides business, government and non-profit organisations with assistance in developing their managers and organisations so they achieve their organisational and personal goals.

University of Western Australia (UWA) is the State's premier academic body and a recognised leader in the region. In 2000, UWA's Graduate School of Management has been offering MBA programs for 30 years and in 2000 was voted in the top 25 MBA programs in Asia/Oceania.



Professor Ron Cacioppe is the Managing Director and Principal Consultant for the Integral Leadership Centre. Ron holds a BSc, an MBA and a PhD. He is currently a Professor at The University of Western Australia, and is also Managing Director of the Integral Leadership Centre. Ron graduated as an engineer and began his working career as a computer systems engineer, developing on-line computer control systems for industry. Ron previously taught at Macquarie University's Graduate School of Management and Curtin University's Graduate School of Management and has published a number of articles on managerial personality types, stress and health at work, communication, organisational improvement and leadership. He co-authored the text 'Organisational Behaviour in Australia and New Zealand' which is the most widely used book in this field in Australia.



He has consulted to many organisations in Australia and abroad, and has been involved in training, teaching and consulting in the areas of performance review, management development, stress and organisational effectiveness.

Ron initiated the Masters Degree in Leadership and Management at Curtin University and was course coordinator of this program for six years. Ron is well known for his innovative approach to management development and training, to ensure maximum learning and transfer to the workplace. Ron has been extensively involved in the design and conduct of leadership and management development programs for numerous private and public sector organisations.

Karen Kotzé has considerable experience as a consultant with ILC in corporate and public program development, facilitation, training and working with groups in both private and public sectors. She has a strong background with 15 years' experience in business management. Karen is an accredited administrator and facilitator of the Myers-Briggs Type Indicator, and an accredited administrator and coach for the MLQ Transformational Leadership tool. She holds an Advanced Diploma in Leadership and Management and is currently studying towards an MBA at the UWA Graduate School of Management.



Karen spent 28 years in Africa where, for 15 years, she was Managing Director of Zambia's primary exporter of African traditional art and where she developed extensive breadth and depth of business management and leadership skills across international boundaries. In Perth, Karen has worked with Western Power as a coach, facilitator and MBTI consultant for their Managerial Leadership Initiative.

Andrea Lloyd holds an MBA from the UWA and a BA (Hons) Degree from the University of Wales (University College Cardiff). She is an Associate Fellow of the Australian Human Resources Institute. She has a valuable combination of corporate and consulting experience. This enables her to bring a broad business perspective, with clear insights into the strategic, commercial, operational and people needs of organisations. Her in-depth exposure to human resources, organisation development and management consulting spans 15 years.



Most recently Andrea was the Manager of Human Resources and Organisation Development for Westpoint Corporation during a period of rapid growth and change. The primary challenge being to ensure alignment between the strategic ambition of the organisation, its developing operating style and the needs of its people. Prior to this she was a Principal Consultant with PA Consulting Group. Her consulting experience has covered most industry sectors and professional service organisations including both the public and private sectors. As a point of interest, her early career in Australia was spent in the Goldfields where she was the Executive Officer of the Leinster Recreation Association, an organisation that provided sporting, community and social activities to people in the remote mining community.

Andrea's key areas of experience include strategic planning to ensure alignment between corporate and HR strategies, management and leadership development, organisation development, developing selection and induction systems to ensure the right people are selected for the right roles, staff retention strategies, role development to focus employees on what adds most value, individual and team coaching, developing performance management and appraisal systems, developing effective work practices (time management) and achieving performance through teams.