

# **Whose Line is it Anyway?**

*A review of the connection arrangements for large customers throughout the National Electricity Market*

*Exigency Management Pty Ltd  
February 2004*

## **Acknowledgement**

***Exigency Management is grateful for the contributions of representatives of manufacturers, developers, commercial property owners, electrical contractors, representative bodies, regulators and network businesses, which have at all times been constructive and informative***

## **Disclaimer**

***Exigency Management has written this report in good faith, based on information provided to it by industry representatives and relevant documents in the public domain that it has been able to examine in the time allocated for this review.***

***The arrangements for connections throughout NEM and the regulations that underpin them are diverse and complex. Exigency Management cannot be held liable for any decisions or actions taken by persons based on their reading of this report.***

***Any persons contemplating decisions or actions in relation to connection arrangements should refer to the relevant codes, guidelines, policy and other documents produced by the various regulatory bodies and network service providers.***

***“If that is where you are trying to get, I wouldn’t have started from here”***

***Traditional.***

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## ***Conventions Adopted in this Report***

The arrangements for connection in the NEM are complicated by the fact that there is no consistent set of definitions. For the purposes of this report, the following definitions apply:

### **Augmentation**

An increase in capacity of the Local Network without changing the footprint of the network.

### **Connection**

An asset enabling a premise to take electricity supply from the Local Network. This may include extensions and augmentations (see below). The trivial case of energising an existing asset (often referred to as connection in the industry) is excluded from this definition.

### **Extension**

The increase of the Local Network footprint by construction of new electrical assets connecting the existing network to a new connection point.

### **LNSP**

The Local Network Service Provider. Also referred to as Distribution Network Service Provider or Distributor in some jurisdictions.

## Executive Summary

Large customers seeking to upgrade or connect to the local network face considerable differences throughout the National Electricity Market (NEM) in:

- The amount of their contribution
- The level of contestable choice
- The process they need to follow
- The level of regulatory protection

Whilst there are positive aspects in each jurisdiction, the overall picture is extremely complex and creates barriers to economic development.

### Contributions

The amount of contribution is largely determined by the local regulations. Since all jurisdictions differ as to the extent to which the Distribution Use of System (DUoS) charge is used to offset connection costs, then the potential exists for large variations in the amount of customer contributions. This is summarized below:

Jurisdiction	Potential Customer Contribution*	Comments
NSW	200%	No DUoS off-set for contestable works
SA	165% to 180%**	A 3 years DUoS rebate plus a standard amount (Proposed)
Victoria	135%	DUoS off-set based on suggested 15 year discount period for businesses
QLD	100%+/-***	Costs recovered over economic asset life
ACT	100%	Discount period based on economic asset life

\*Contributions plus discounted DUoS charges expressed as a %age of the connection asset cost.

\*\* Depending on discount rate used

\*\*\*Augmentation costs are excluded from the connection cost fixed charge and DUoS unit charges exclude the cost of the "dedicated" assets.

Connection assets are assumed to have a 45-year economic life

A central argument for customer contributions is that they provide locational signals to drive economic efficiency. In practice, this argument is undermined because of:

- The weakness of the signal in relation to other costs
- A lack of transparency
- The late timing of these signals
- The economic rationale is not robust, notably in NSW and SA

In general, relevant information is not available to large customers at the start of their planning cycle. Specifically, information on connections, contributions and the associated network charges is either not published or is published but incomplete and consequently is of limited use for customer budget planning and decision making purposes.



## **Contestability**

Whilst contestability can improve economic outcomes, implementation in NSW has led to an inflexible process that has led to the discontinuation of providing indicative quotes. Further, inconsistencies have arisen between the charging and recovery of contribution depending on whether the works are deemed to be contestable and whether conducted by the LNSP or third parties.

## **Process and Service Standards**

In general regulators and LNSPs do not adequately explain the connection process, which further limits the usefulness of information.

## **Regulatory Oversight**

There is no coordinated, systematic tracking of contributions or contestability between jurisdictions, which inhibits the development of a national, customer oriented approach.

## **Conclusions**

The connection arrangements do not facilitate economic activity, particularly for large customers operating in several states.

However, there are a number of aspects within each jurisdiction that impressed us and might form the basis of a “best of breed” approach.

This includes:

- Economically rational approaches in Victoria, ACT and Queensland that recognise the offsetting effect of DUoS revenues
- The equitable application of an LNSP contribution towards connection costs, irrespective of whether the LNSP or a third party carries out the work as in Victoria and South Australia
- The proposed publication of standard zonal augmentation charges in South Australia (although we question the inclusion of augmentation in contribution calculations)
- The funding of contributions in Queensland through an annual charge
- The application of contestability to augmentation works in NSW and Victoria
- The approaches of Powercor and Country Energy in clearly communicating the connection, contestability and contribution arrangements to their customers.

## **Recommendations**

There is considerable scope for regulators and LNSPs to improve the arrangements for customer connections by:

- Increasing equity
- Increasing transparency
- Harmonising where appropriate

Specific steps to be taken by LNSPs and regulators are as follows:

- Consider recovering all augmentation costs through DUoS, rather than contributions, given the general benefits of increased reliability
- Consider extending contestability to augmentation in certain circumstances, for example where the works can be isolated safely and without undue interruption to other customers
- Ensure that contribution arrangements are consistent between LNSP- and third-party performed works throughout the NEM
- Improve communication of the connection process, regulatory rules and outcomes, using illustrated examples
- Gather consistent data sets and publish contribution, connection process and contestability performance data to highlight inconsistencies and set regulatory expectations going forward
- Remove arbitrary customer size/load thresholds from the determination and calculation of contributions
- Mitigate shocks by recovering customer contributions through itemized annuitised network charges

Footnote: Whereas we found the contribution arrangements in Queensland to be very equitable, it should be noted that a Community Service Obligation is in place in the state and some franchise customers (including large customers who have elected not to go second tier for their retail electricity) have bundled tariffs that may be less than the unbundled network tariff.

## ***Background***

Exigency's interest in electricity connections followed an article in Australian Financial Review, ("Power to the People..." Tina Perinotto Tuesday 20 May 2003), highlighting the debate over connections. In particular, we were alerted to the potential for customer connections to become contentious, and in extreme cases, create a disincentive to development.

A preliminary examination of the background to the issues raised in the AFR article indicated that several aspects were involved which varied from state to state, raising potential market efficiency issues. We could find no formal research in the area that helped to explain whether customer experiences varied and if so, why.

Informal conversations with industry representatives highlighted that there had been a number of changes to the arrangements for connections following deregulation and that these had created some challenges in a number of states. Our discussions led us to believe that businesses face potentially substantial charges for connections and upgrades which, depending on jurisdiction, they have limited or no means to negotiate. Further, the timeliness of the information provided to them is potentially detrimental to business planning.

Exigency was encouraged by large commercial and industrial customers to conduct a formal review in the area and a successful application was made to the NECA advocacy panel to gain partial funding to conduct a snapshot assessment of the availability and usefulness of connection and network charge information and alternatives available to business users throughout the National Electricity Market.

The project commenced at the end of November 2003 and was completed in February 2004.

## ***Methodology***

Exigency sought to understand both the regulations underpinning the connection arrangements and the way in which Local Network Service Providers apply them.

This was achieved through a combination of web research, face-to-face interviews and validation of the summary matrix (see appendix) by those interviewed.

The work steps as per the original scope are as follows:

### ***Step 1- Research LNSP regulations to identify any Service Levels governing provision of network charge and alternative information***

The websites of jurisdictional regulators were searched and cross-referenced to LNSP websites where relevant.

### ***Step 2 - Develop initial user scenarios and validate with LNSPs, incorporating appropriate suggestions***

Illustrative user scenarios were developed in discussion with large customers and LNSPs. They comprised property, manufacturing and services examples in rural and urban settings. These provided a sufficient range of situations and electrical configurations to then discuss with each LNSP and regulator how the regulations would apply and identify any key differences in regulatory treatment.

It should be noted that whilst the range of examples was useful in our discussion, we found the key drivers for the level of contribution as follows:

- The jurisdiction in which the customer connects
- The capacity required (MVA)
- The available capacity of the network
- The expected usage (MWHours)
- The distance from the existing network

In general, these drivers were independent of industry sector but give rise to different outcomes in urban and rural locations.

It is also important to note that terminology used in relation to customer connections varies significantly between jurisdictions. Specifically, there is no common definition of what constitutes a large customer. Whilst this complicated our discussions, we were able to describe a common set of scenarios in which a customer load had the potential to cause the capacity of the local network to require augmentation.

### ***Step 3 - Create table template***

The template formed the basis of our data gathering and the final version of that template is the summary matrix (see appendix).

### ***Step 4 - Research Web-sites to extract network charging information, note any guaranteed standards gaps or navigation difficulties***

We took the perspective of a large customer (ie reasonably informed but not expert on electricity regulations). We used search terms including, capital contributions, connections, customer contributions as well as attempting to navigate using the website home page, menu and site map as appropriate.

We found that jurisdictional regulators and LNSPs publish a variety of relevant information in various forms. This includes pricing principles statements, standard charges and codes of practice and service standards. It was noted that where standard charges are quoted for connection this relates to the trivial case of energizing an existing asset. In only one case (South Australia) is it proposed that the utility (ETSA) publishes a table of standard augmentation charges on a zonal basis, to provide customers with better locational signals.

We were interested to elicit comparative cost information. In the course of our research, we found that this was impractical for three key reasons. First, we discovered that due to contestability processes operating in different states, not all LNSPs are prepared to provide cost data without an approved detailed design. Second, we were advised during our face-to-face meetings that actual costs of connection vary by as much as 400%, depending on local factors and under these circumstances, it would be difficult to draw robust conclusions about actual costs from a small sample. Finally, historic information on connection costs and contributions is not gathered by all regulators and of the generally aggregated information that is gathered, not all is published.

### ***Step 5 - Contact LNSPs to obtain relevant information not provided on web-site***

LNSPs were contacted to explain the objectives of the study, the methodology adopted and to set up meetings. In each case the Network Manager (or equivalent) or Regulatory Manager (or equivalent) was contacted. Typically, regulatory and network representatives attended the meeting, which provided a useful insight into the difficulties of interpretation and application of the relevant regulations.

We also conducted meetings with Regulators, to complement our understanding of the rules from web-based research.

It must be noted that all Regulators and LNSPs contacted were amenable to meeting and extremely helpful in assisting our understanding of both the rules and the historic backdrop to these rules.

We made contact with all LNSPs and jurisdictional regulators with the exception of Australian Inland Energy. Of those organizations contacted, we held meetings with all but AGL.

### ***Step 6 - Tabulate response times, responses and charges***

We were particularly interested to understand the role of service standards in arranging and charging for connections. Where prescribed times are set out for undertaking the process of seeking and achieving connection to the local network, these were recorded.

Relative charge information at a jurisdictional level is explained under contributions and LNSP-specific information is set out in the appendix.

### ***Step 7 - Validate information with LNSPs***

We sought to achieve a complete and accurate record across the NEM. Following our face-to-face meetings, we tabulated the summary findings and provided these in draft form back to those parties we interviewed.

All regulators received a summary of their own regulatory vector and the vectors of the corresponding regulators in other states.

Each LNSP received a summary of their vector, together with the vectors for their jurisdictional regulator and any other LNSPs within the same jurisdiction.

This enabled each party to comment on the completeness and accuracy of their own record, in the context of the level and type of information sought. The final matrix, including relevant amendments is included in the appendix.

It should be noted that the rest of the report, which is based on the summary matrix, comprises Exigency's assessment of that information, together with our observations on the arrangements across the NEM and our suggestions for change. The report was not subject to editorial input or control from any party and is entirely the responsibility of Exigency Management.

All summary information was validated by the LNSP or Regulator as appropriate, with the exception of Powercor, Ergon and AGL.

### ***Step 8 - Document and compile report***

This document, which constitutes the report in step 8, is subject to final acceptance by NECA Advocacy Panel before placing in the public domain.

## **Contributions**

### ***“There is no such thing as a free lunch”***

All jurisdictional regulators are concerned to ensure that an uneconomic load is not connected at the cost of existing customers. However, different regulatory approaches within each jurisdiction mean that customers could pay substantially more than their economic costs.

In circumstances where a customer contribution is required, the jurisdictions divide between those who will only allow charges to the extent that the cost of a connection will not be covered by DUoS and those that require the customer to bear the full costs of the connection.

There was general indifference to the extreme case, for example where a business chose to set up beside a zone sub-station so that its connection assets were relatively minor and it contributed DUoS well over and above its cost of connection to the benefit of all customers.

With the exception of Queensland and most (though not all) NSW customers, augmentation costs are within scope for customer contributions. This raises two issues:

- First, augmentation is largely a matter of timing, ie “natural growth” of the network will achieve the requisite level of capacity eventually. Victoria has moved to mitigate “double dipping” by causing the LNSP to be transparent in its analysis, whilst South Australia proposes a lower size threshold (under which customer size is viewed as part of general growth) and placing a time limitation on when the actual augmentation must commence
- Second, augmentation has benefits for customers in general in increasing the capacity and reliability of the network but the costs are typically borne by the connecting customer

The approaches in each jurisdiction are described below and summarized in the appendix.

### **NSW approach**

In NSW, the regulations require that in general customers pay for the direct costs of the dedicated connection asset by way of a contribution. In addition the regulations allow for the LNSP to require rural and large load customers (see appendix for definition) to pay an additional contribution towards any augmentation costs. Contrary to other jurisdictions (Victoria, ACT and South Australia), the customer receives no offsetting credit for any future DUoS that will be paid.

Whilst this regulatory framework provides considerable scope to LNSPs to recover additional contributions from customers, we found that in general, LNSPs applied discretion in favour of the customer.

It was not intended that the incidence of contributions be a frequent occurrence, because the corollary is that such contributed assets do not earn a regulated return. Nevertheless, we understand that the frequency and amount of contributions has increased significantly in NSW since introduction of the new contribution rules in 2002.

This might be explained by the LNSPs' perceptions that the regulatory regime is highly uncertain. In such circumstances, the LNSP is more likely to seek a cash contribution than earning a regulatory return that is reduced or removed at the next Determination.

Further, the potential exists for inequities to arise particularly for customers either side of the Large Load Customer threshold (see appendix for definition). In such situations, a customer just under the threshold would not be required to contribute towards augmentation unlike a customer at or above the threshold. Further, for those required to contribute to augmentation, the impact on the customer is different depending on whether the LNSP or a third party carries out the works (see Contestability).

Large customers in NSW (some believe all customers in NSW) are able to elect for a Cost Reflective Network Tariff, which would mitigate the risk of their paying too much for their connections. However the LNSP policies on qualifying thresholds differ (eg EnergyAustralia applies a threshold of 10MW, whilst Country Energy applies a threshold of 66kV and Integral applies 10MW or 40GWhr per annum). It is unclear whether this option is widely known to customers.

### **SA approach**

The SA regime is currently under review. Currently, the proposed contribution calculation is similar to the NSW process, but with a "nod" to economic rationality, as the connecting customer is credited with a 3 year DUoS rebate.

Assuming that tariffs are rational (ie that DUoS provides an economic return on the assets) and based on a 45-year life, this credit is worth 20% of the connection cost using the WACC as the discount rate. (Note that a 35% value is used in published discussion documents). Irrespective of the discount rate applied, the customer is being credited with 3 years of an asset that typically lasts for 45 years.

Whilst proposed thresholds mean that, in general, smaller customers will not pay any contribution, for some small customers and many larger customers the costs can be onerous. In the particular case where a new connection requires augmentation the current proposals do not give the applying customer credit for any spare capacity on the existing network.

ESCOSA is proposing to send some locational signals by requiring ETSA to publish standard zonal augmentation charges throughout the state. Whilst this enhances certainty for business planning purposes, the costs of extension remain uncertain until a quote can be obtained against an approved design.

### **QLD Approach**

Queensland is in some ways unique in comparison with other states. Technically, Energex and Ergon do not actually request contributions of large customers (ie ICCs and CACs – see appendix), because they fund the cost of connection and recover them through a fixed charge amortising the cost of the connection over the life of the asset (assumed to be 45 years).

Where a connection requires augmentation of the network, the augmentation is excluded from the contribution calculation and the costs are recovered either through the standard DUoS charge in the case of CACs (medium sized businesses) or a fully cost reflective charge in the case of ICCs (large businesses).

The recovery of customer contributions through a fixed charge was considered unusual by LNSPs in other jurisdictions who did not see themselves in the position of being “banks” and were very concerned about the credit and stranded asset risk of such an approach. In so saying, they appeared to distinguish between the specific risks involved in connections and the lease income that they earn on the majority of their assets.

### **Victorian Approach**

In Victoria the contribution is calculated using the WACC to discount DUoS revenues to offset against the incremental connection costs. A light-handed regulatory approach has been taken and whilst no calculation periods are mandated, the regulator expects LNSPs to explain the rationale to business customers if they depart from a 15-year calculation period.

The discounted incremental revenue is credited against the connection cost irrespective of who carries out the work.

### **ACT**

The approach is similar to Victoria, except that DUoS is discounted over the period of the economic life of the assets (typically much greater than the 15 years suggested in Victoria). The concept of a basic connection exists, such that if a customer requests a connection in excess of this, then the customer is liable for the incremental costs.

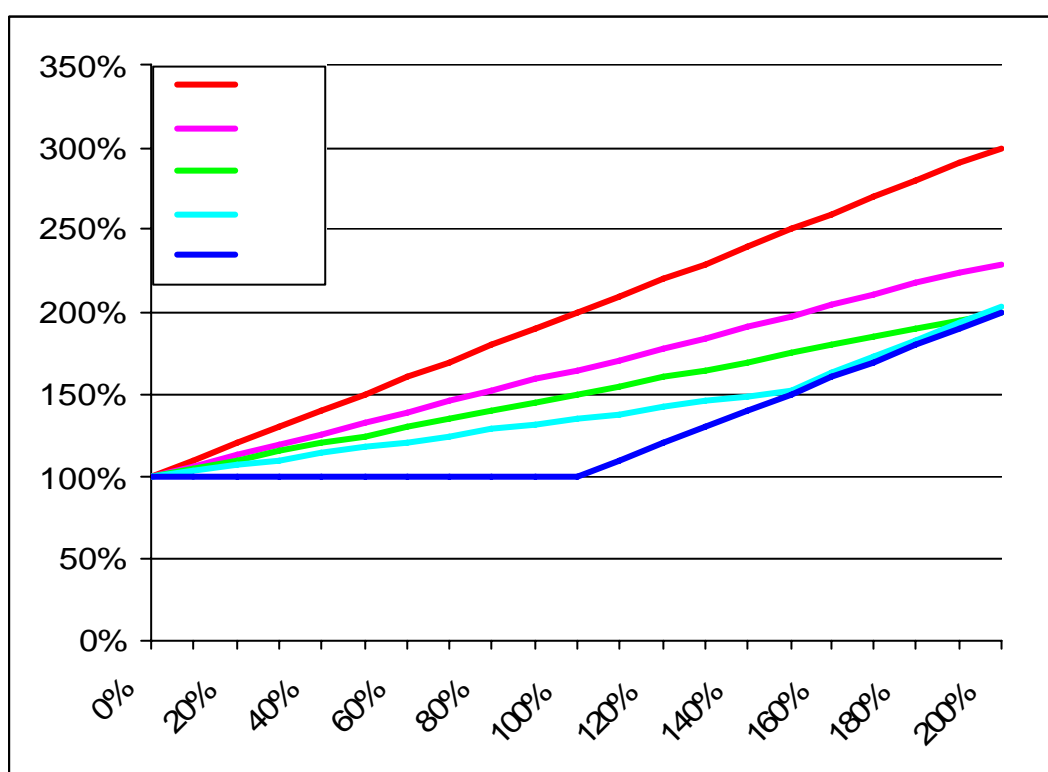
In ACT it is considered a right to be connected to the electricity grid at no additional charge unless it is uneconomic. The DUoS “credit” is determined in respect of providing the least cost, technically acceptable connection and a contribution will be required for any specification in excess of that.

## Graphical Representation

The following graph is a high-level simplification of the differences between the various regimes, but provides an illustration of the different levels of contribution that a client could pay in the different jurisdictions.

The X-axis (horizontal) is the discounted DUoS amount as a proportion of the cost of connection for different amounts of DUoS. It goes from Zero, where the connection is totally uneconomic, through 100% where the DUoS will exactly pay for the connection up to a fully loaded low-cost connection (eg due to proximity to a substation) where DUoS would cover double the cost of the connection.

The Y-axis (vertical) is the total cost that the customer will pay in connection charge contributions and discounted DUoS revenues combined. Under all regimes, the minimum cost the customer will pay is the cost of connection.



**Total Customer Payment vs Level of DUoS funding**

### Caveats

- SA provides a rebate of three years DUoS, which is illustratively valued in the consultation literature at 35% of the cost of the fully priced connection.
- The Queensland model is different from all the other models because of the way in which almost all customers pay for their own connection assets
- The Victorian default period for discounting the forecast DUoS is 15 years. The value of this is 70% of the value over the economic asset life, at current rates. The value would tend towards the ACT model if the customer could negotiate a longer period.

## Locational Signals

A central argument for customer contributions is that they provide locational signals to drive economic efficiency

The approach to locational signaling within each jurisdiction is summarized below:

Jurisdiction	Locational Signalling Approach	Comments
NSW	Constraints signalled through network plans Contestability process discourages indicative quoting Extension costs determined by level 1 ASP quote	LNSP is not obliged to quote for extension. Contestability may delay price discovery.
Vic	Constraints signalled through network plans LNSPs continue to provide indicative/firm quotes to provide timeliness and/or certainty to customers	
QLD	Constraints signalled through network plans LNSPs provide indicative/firm quotes	
ACT	Constraints signalled through network plans LNSP provide indicative/firm quote	
SA	Zonal augmentation costs to be published by LNSP Extension costs to be determined by quotation by LNSP or accredited third party	Proposed approach

Anecdotally, we were advised that connection costs could vary by up to 400%, depending on specification and local configuration. When combined with the vagaries of contribution methodologies this makes it extremely difficult for large customers to forecast network connection costs.

This resultant uncertainty in the price signal, both in terms of timing and quantum, means that customers are not in position to respond to the signal. Furthermore, the weak economic rationale for the contribution calculation in NSW and SA (arbitrary or no DUoS offsets and arbitrary load and capacity thresholds) undermines the validity of the signal.

## Contestability

Contestability is relevant to the design and construction of connection assets. The contestability framework varies between jurisdictions as does each LNSP’s response to contestability.

Whilst the drivers for contestability in each jurisdiction are for choice and economic efficiency, the structure and development of the contestable markets vary between jurisdictions as the following table demonstrates.

Activity	Vic	NSW*	QLD	SA (proposed)
Design	Non-contestable	Contestable	Contestable	Non-contestable
Extension	Contestable	Contestable	Contestable	Contestable
Augmentation	Contestable – subject to safety	Contestable	Non-Contestable	Non-contestable
Relocations	Contestable	Contestable	Contestable	Contestable

Notes:

- 1 ICRC is currently considering whether to recommend the introduction of contestability in ACT
- 2 \*Contestability is dependent upon whether the asset is deemed a “dedicated asset” in which case it is customer funded and therefore subject to contestable processes or a “shared asset” in which case it is funded by the LNSP and not contestable.

It should be noted that where contestability has been introduced, LNSPs in the main have argued to exclude work on the existing network (augmentation). This is with the notable exceptions of NSW, where the regulations allow for customer-appointed ASPs to enter LNSP premises to carry out augmentation work under LNSP supervision and Victoria, where accredited third parties can carry out augmentation works, subject to legitimate LNSP safety considerations.

The evolution and status of contestability in each jurisdiction is summarized below:

### Victoria

In Victoria, the contestable market has matured such that whereas initially the market developed to meet customer requests for independent quotes, the providers of such services now usually provided sub-contracting services to LNSPs. There appear to be a number of drivers for this development.

First, LNSPs have sought to outsource a number of services, including construction of connection assets. Second, following the introduction of contestability, LNSPs have sought to provide certainty at the earliest stage to manage customer expectations and have even been prepared to offer firm quotes to avoid planning delays for their customers.

Whilst design is not contestable, in practice a design market has developed through outsourcing and customers do on occasion refer the LNSP design to third party design specialists as an independent check on appropriateness.

The regulatory approach underpinning the contestable framework is based on the tenet that a negotiated outcome is preferable to a regulated one and so the framework has been implemented that is flexible to different customer needs and able to evolve and respond to market feedback.

## **NSW**

In NSW, a less flexible regulatory approach has been taken toward contestability, such that design and construction of qualifying contestable connections must be provided by accredited service providers (ASPs) within a single specified process. Whilst LNSPs can provide ASP services, they are not obliged to do so and NSW LNSPs have taken strategic decisions regarding exiting these activities, competing for these services in their geographical area or extending their geographic coverage to compete in neighbouring areas.

This prescribed approach has led to LNSPs discontinuing the practice of providing indicative quotes, which has adversely impacted the ability of large customers to plan and budget for connection costs.

Anecdotally, delays have been experienced on occasion due to the rejection and resubmission of third party designs. This may have been a feature of the initial development of the contestable market.

For large load and rural customers where augmentation is required, the LNSP has the discretion to recover the augmentation costs through an increase network charge in cases where it carries out the work. Alternatively, if a third party level 1 ASP carries out the augmentation work then the customer bears the augmentation costs through a one-off payment.

## **Queensland**

In Queensland, whilst contestability is permitted there is virtually no developed market for contestable services. QCA explains that this is in part due to a lack of awareness among customers of their right to choose. However, it must also be realized that within Queensland customer connections for large customers are funded by the LNSP and recovered through fixed charges, thereby avoiding one-off contribution payments and one of the triggers for contestable services.

## **South Australia**

In South Australia, the size of customer contributions has become a large issue over the past 12 to 18 months and if the currently proposed arrangements are implemented, it is likely that large customers will look to accredited third parties to mitigate their connection costs.

## **ACT**

Within ACT, the monopoly utility has traditionally provided “free electricity” (ie free access, funded through DuoS charges) and no framework exists for contestability. However, ICRC is currently considering the public benefits of contestability and is shortly due to make its recommendations to government.

## ***Relationship between Contestability & Contributions***

The different relationships between contestability and contributions within each jurisdiction have led to different and sometimes unintended outcomes.

Essentially, the proportion of the customer contribution relative to the connection cost is different in each state, depending on whether the connection is provided by the LNSP or a third party.

It would appear that in NSW the introduction of contestability has created a discontinuity in which either the LNSP conducts the work and the customer is required to make no contribution or the work is contestable and the customer is required to make a 100% contribution. This split is reached through a combination of the threshold tests that exist in the regulations and the policies developed by each LNSP in light of these regulations.

<b>Relationship Between Contestability and Contributions</b>					
Jurisdiction	NSW	Vic	QLD	SA	ACT
Contested	Large Load and Rural: E and A costs Others: E costs only*	Cost offset by discounted 15 year DUoS	Untested	Actual cost less 3 year DUoS credits	No contestability
LNSP constructed	Augmentation recovered through DUoS	Cost offset by discounted 15 year DUoS	100% of extension assets	LNSP cost less 3 year DUoS credits	LNSP cost less lifetime DUoS credits

\*E- Extension, A- Augmentation

## Process and Service Standards

### Connections

A generic connection process can be described, for which key jurisdictional differences are described below.

Process step	NSW	Vic	QLD	ACT	SA
Request indicative quote	Practice discontinued	Common Practice	Common Practice	Common Practice	Common Practice
Apply formally	LNSP determines whether contribution required	LNSP determines whether contribution required	LNSP determines whether contribution required	LNSP determines whether contribution required	LNSP determines whether contribution required
Issue Design Brief	LNSP provides design pack for level 3 ASP	NA	NA	NA	NA
Obtain Design	LNSP not obliged to quote for design service	LNSP issues design	LNSP issues design	LNSP issues design	LNSP issues design
Approve Design	LNSP reviews design relative to its published standards	NA	NA	NA	NA
Obtain quote	LNSP not obliged to quote for construction	Above \$5,000 customer must give consent if choosing not to tender	LNSP provides firm quote	LNSP provides firm quote	LNSP provides firm quote if requested
Complete works	Subject to LNSP Audit if third party	LNSP may require performance warranty over gifted asset	Subject to LNSP order if third party	Subject to LNSP audit if third party	Subject to LNSP audit if third party
Energise Supply	LNSP responsibility. Occurs after payment of any reimbursements	LNSP responsibility	LNSP responsibility	LNSP responsibility	LNSP responsibility

Whereas the process in NSW is prescriptive, a more flexible approach has been taken in Victoria. This has provided customers with options as well as allowing LNSPs to continue to provide indicative or firm quotes at an early stage, to manage customer expectations.

The processes in the other jurisdictions have been devised by the relevant LNSPs and subject to regulatory approval.

Where the service standards have been codified this has often been in response to customer complaints. In these situations, a period of 20 business days is usually specified in which the LNSP must provide a quote following receipt of all relevant information (see appendix). The standards allow for complex connections and under these circumstances the process involves an agreed timetable to be met by the LNSP. In Victoria, time windows are specified in which the LNSP can request clarifying information.

Whilst in general, overly prescriptive service standards have been avoided, the general regulatory thrust has been to align with good business practice and encourage the LNSP to be responsive to customer needs and proactively manage expectations.

### **Alternatives Available to Business Users**

Three practical alternatives are available to large users in light of onerous connection arrangements:

1. Defer the investment decision (eg until “natural” augmentation has occurred and the contribution requirement is lessened)
2. Relocate operations to a more favourable location, LNSP or jurisdiction
3. Implement embedded generation

Alternatives 1 and 2 are feasible and have been applied by large customers in certain circumstances. However, such alternatives are impractical for certain sectors. For example retailer businesses will locate based on customer demographic rather than network costs and in manufacturing other economic or competitive drivers come into play.

For some, particularly those with a business critical need for highly reliable electricity supply, embedded generation may be an option worth considering, particularly if it avoids augmentation or other connection costs.

Throughout the NEM, embedded generation is credited with avoided TUoS (Transmission Use of System) charges. However beyond this, our review shows that it is dealt with very much on a case-by-case basis and whilst we were made aware of instances where embedded generation schemes have been credited with avoided network costs, generally, there is little in the way of formal regulations, guidelines or processes to assist their development.

Generally, LNSPs explain that the process for applying to connect an embedded generation scheme is “similar as for connections in general”. In Victoria, regulatory timelines are set out for responses to applications to connect embedded generators and we found that only Powercor has developed and published guidelines for schemes within its network.

## ***Regulatory Oversight***

### **Connections**

All regulators are consistent in their ability to facilitate or determine the resolution of customer complaints on two aspects:

- Whether the arrangements are fair and reasonable and
- Whether the rules have been correctly applied

Typically, connection complaints have arisen over cost, transparency and timeliness. Challenges on design have been made on occasion but regulators typically do not have powers to review the actual design, which therefore remains a matter between the customer and the LNSP.

In terms of monitoring, all regulators collect annual regulatory accounts, which typically provide a general summary of capital contributions, distinguishing between cash contributions and gifted assets as appropriate. In addition the regulators have audatory powers to ensure that the regulatory accounting is appropriate.

Beyond this, we only found systematic monitoring of contestability and contributions in Victoria (see appendix). It should be noted that going forward, the Victorian regulator will require all LNSPs to publish their processes to increase transparency. Thereafter, the regulator will suspend the requirement of LNSPs to report contestability data and will rely instead on the customer complaint process to monitor the effectiveness of the connection rules.

Despite this step, the ESC representatives believe the initial monitoring regime to be a critical success factor when introducing new connection rules.

The challenge we see for a complaints-only monitoring regime is whether the complaint process facilitates rapid resolution of issues. Typically, for many large customers, time is a key driver, which might inhibit issues being raised. South Australia has gone some way to mitigating this risk within the design of the regulatory dispute process. However, customers in any jurisdiction who are likely to have future dealings with an LNSP may be inhibited from complaint for fear of “rocking the boat”.

### **Embedded Generation**

There are currently no detailed guidelines or regulations on embedded generation although these are on the agenda in most jurisdictions and expected shortly in Victoria and ACT.

## ***Website Quality***

The availability of clear information on connections is a critical component in facilitating efficient outcomes. Consequently, we hoped to find websites with a “lifecyle” or process layout with relevant information for customers to make informed decisions about their connection arrangements.

In general, we found it extremely difficult to obtain information on connections, whether on LNSP websites or regulators’ websites. In several cases the information is present, but can be found only after being guided to it by representative personnel. Where the information is present, it is often contained within long, technical documents.

Several LNSPs only deal with the trivial case of connection of an existing asset (ie energisation). This is typically the case with retail-focused businesses.

However, we were pleased to be able to quickly locate a useful guide to connections on Powercor’s website without outside assistance. The guide sets out the process, the parties’ rights and obligations and an explanation that a contribution might be expected.

Country Energy has also published a readily accessible guide on its website and has taken the additional step of explaining the connection arrangements through a number of illustrated worked examples.

The level of clarity and transparency evident on the Country Energy and Powercor websites serves as a model for other LNSPs and regulators alike.

Note that some useful information does exist on other websites, but is not easily found.

## ***Conclusions and Recommendations***

### ***“The road to hell is paved with good intentions”***

Whilst all regulators espouse common objectives of achieving economic efficiency and equity, their approaches in relation to connections varies considerably, sometimes with unintended consequences.

Overall, we have found that the connection arrangements do not facilitate economic activity in all cases and there are particular challenges for large customers operating in several states.

However, there are a number of aspects within each jurisdiction that impressed us and might form the basis of a “best of breed” approach.

This includes:

- Economically rational approaches in Victoria, ACT and Queensland that recognise the offsetting effect of DUoS revenues
- The equitable application of an LNSP contribution towards connection costs, irrespective of whether the LNSP or a third party carries out the work as in Victoria and South Australia
- The proposed publication of standard zonal augmentation charges in South Australia (although we question the inclusion of augmentation in contribution calculations)
- The funding of contributions in Queensland through an annual change
- The application of contestability to augmentation works in NSW
- The approaches of Powercor and Country Energy in clearly communicating the connection, contestability and contribution arrangements to their customers.

There is considerable scope for regulators and LNSPs to improve the arrangements for customer connections by:

- Increasing equity
- Increasing transparency
- Harmonising where appropriate

Specific steps to be taken by LNSPs and regulators are as follows:

**Consider recovering all augmentation costs through DUoS, rather than contributions, given the general benefits of increased reliability**

We believe the current rules enable benefits to flow to customers in general whilst costs are borne by individuals.

**Consider extending contestability to augmentation in certain circumstances, for example where the works can be isolated safely and without undue interruption to other customers**

This is well established in NSW, but elsewhere the rules are less clear or less well understood. As long as an asset can be isolated from the network without undue interruption to other customers then we can see no reason to preclude contestable activities.

**Ensure that contribution arrangements are consistent between LNSP- and third-party performed works throughout the NEM**

Clarity needs to be applied to the flows of cash and assets under third party and LNSP conducted work to ensure that the treatments are equitable and non-discriminatory.

**Improve communication of the connection process, regulatory rules and outcomes, using illustrated examples**

Regulators should clarify responsibilities and specify the information to be communicated to customers on connection process, rules, methodologies, rights and obligations.

**Gather consistent data sets and publish contribution, process and contestability performance data to highlight inconsistencies and set regulatory expectations going forward**

Comparative data needs to be gathered to support the consistent and equitable treatment of customers throughout the NEM and capture issues that will not necessarily be raised as complaints.

**Remove arbitrary customer size/load thresholds from the calculation of contributions**

The application of thresholds imposes a spurious accuracy on highly uncertain customer demands and gives rise to inequitable treatment of parties on each side of the threshold.

**Mitigate shocks by recovering customer contributions through itemized network charges**

Recovery of customer contributions is a credit risk issue that can be managed with appropriate guarantees and a suitable risk-weighted rate of return as appropriate.

## ***Appendix: Summary Matrix***