



INTERNATIONAL

FINAL REPORT

Prepared For:

Telstra

Expert Report on ULLS and SSS Prices – IEN Costs (Public Version)

Prepared By:

Henry Ergas

CRA International

Level 1, 29 Jardine Street

Kingston ACT 2604, Australia

Date: May 2005

CRA Project No. D07338-00

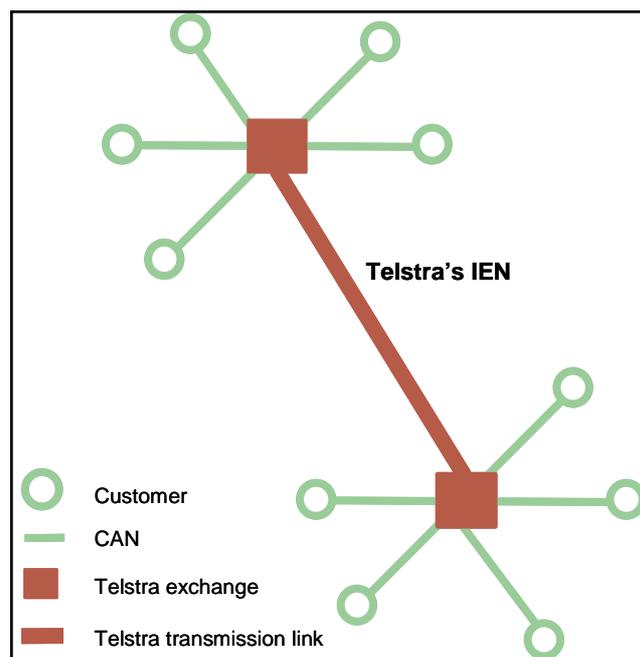
TABLE OF CONTENTS

A. INTRODUCTION.....	1
B. EXPERTISE	4
C. TELSTRA'S COLR OBLIGATIONS	6
D. RECOVERY OF IEN COSTS.....	7
D.1. FORGONE CONTRIBUTION TO IEN COMMON COSTS	8
D.2. FORGONE RECOVERY OF ATTRIBUTABLE IEN COLR COSTS	10
D.3. RECOVERY OF TOTAL FORGONE IEN COSTS.....	11
E. COLR OBLIGATIONS IN OTHER INDUSTRIES AND JURISDICTIONS.....	12
APPENDIX A : HENRY ERGAS - RECENT EXPERT TESTIMONY AND TELECOMMUNICATIONS EXPERIENCE	14
APPENDIX B : AN ALGEBRAIC REPRESENTATION OF UNRECOVERED IEN COSTS ABSENT A CONTRIBUTION FROM ULLS AND SSS PRICES	16
APPENDIX C : REVIEW OF COLR OBLIGATIONS.....	23

A. INTRODUCTION

1. Telstra proposes to recover a proportion of Telstra's inter-exchange network (IEN) costs that is incurred as a result of Telstra's carrier of last resort ("COLR") obligation as part of ULLS and SSS prices. This report discusses Telstra's COLR obligation, the cost of that obligation, and examines why it is efficient to recover these costs from ULLS and SSS-based telephony end-users.
2. Telstra's public switched telephony network ("PSTN") includes two important components: the customer access network ("CAN"), which connects each customer's premises to a local exchange facility; and the IEN, which connects each local exchange facility to all other local exchange facilities. Figure 1 gives a heuristic example of Telstra's PSTN focusing on two exchanges each with a handful of customers. When customers make telephone calls over Telstra's PSTN, the call is typically carried over Telstra's IEN.¹

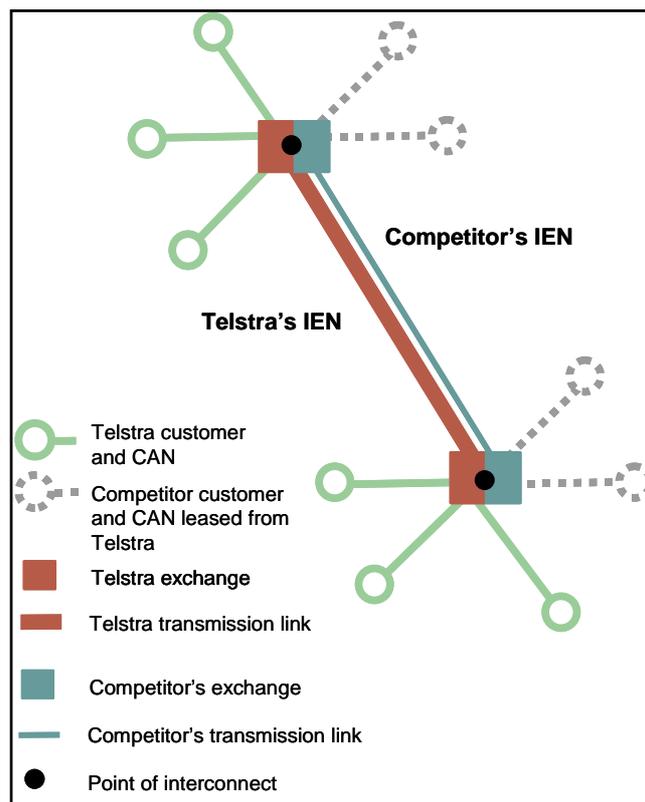
Figure 1: Telstra's PSTN



¹ Even calls between customers connected to the same exchange are carried over local switches, which are part of the IEN.

3. When access seekers purchase Telstra's ULLS or SSS they gain access to the copper pair connecting the customer's premises to one of Telstra's local exchange facilities. In doing this, access seekers generally invest in their own switches and other IEN (or equivalent) infrastructure such as transmission links, to supply alternative telephony services to their end user customers, which means that their customers can bypass parts of Telstra's IEN when making telephone calls.² This is illustrated in Figure 2, which shows Telstra's PSTN meshed with a competitive telephony network (CTN).

Figure 2: Telstra's PSTN and a competitor's CTN³



² The extent to which Telstra's IEN is by-passed depends on whether the competitors' customers call one of their own customers or a Telstra customer, or whether they operate their own transmission links between particular exchanges. If they call a Telstra customer, Telstra will terminate the call on its IEN. Similarly Telstra's IEN will be used if any transmission between exchanges on Telstra's network is required.

³ This figure is intended to illustrate a competitor leasing ULLS from Telstra and building its own IEN. It is not intended to represent a competitor (such as an HFC-based competitor) that builds its own CAN.

4. Telstra has an obligation to be the COLR to supply standard telephone services (“**STS**”) for all end users, including those who acquire retail telephony services from competing carriers using ULLS and SSS.⁴ Telstra’s COLR obligation is not only legally enforceable against Telstra, but breach of it carries the risk of severe penalty and other liabilities.
5. Thus, when end user customers switch to an access seeker, Telstra must maintain its IEN to satisfy its COLR obligation. This means that, as the COLR, Telstra cannot avoid certain IEN costs. Some of these costs are common to other services, that is, must be incurred to produce any or all of those services, and cannot be avoided so long as any subset of those services is produced. Such costs are hereafter referred to as “IEN common costs”.⁵ In addition, Telstra cannot avoid any costs that are incurred to meet the COLR obligation and which otherwise would not be incurred. As an example consider a traffic surge solely attributable to COLR demand. The cost of dimensioning Telstra’s network to handle such a surge would be solely attributable to the COLR obligation. IEN costs that are solely attributable to the COLR obligation (so would not be incurred except for the obligation) are termed hereafter “attributable IEN COLR costs”.
6. In the absence of an IEN cost component in the ULLS or SSS⁶ price, retail customers supplied by an access seeker via ULLS or SSS:
 - 6.1. would not make a contribution to the common costs of the IEN⁷; and
 - 6.2. would not pay for the attributable IEN COLR costs.
7. Access seekers that supply telephony services using Telstra’s ULLS and SSS and their customers benefit from both Telstra’s investment in IEN common costs and the attributable IEN COLR costs. This is because these end user customers have the option of switching to Telstra’s STS at any time, reducing the risks they bear when purchasing services from an access seeker. Unlike other carriers, Telstra does not have the option of turning these customers away.

⁴ When an access seeker supplies retail broadband using SSS, the end user must purchase STS from Telstra. However, to the extent that the retail customer uses VOIP over broadband, Telstra’s IEN traffic can still increase if the end user switches toward more conventional telephony.

⁵ An example of a common IEN cost is an inter-exchange transmission line used to carry local and long distance calls. Even if long distance calls are not supplied, the common cost of the transmission line must be incurred to supply local calls (and *vice versa*).

⁶ The discussion here and in Appendix B focuses on the case of ULLS, but applies to SSS, for example, to the extent that SSS customers replace STS with VOIP (perhaps as encouraged by their providing access seeker), as this reduces the contribution Telstra would otherwise earn on STS services, for example, through PSTN origination and termination charges (PSTN OTA).

⁷ They may contribute indirectly to those costs, if they make calls to customers located on Telstra’s network and hence incur a terminating PSTN OTA charge. As noted below, these charges are likely to be offset by payments made by customers on Telstra’s network for calls going to the access seeker’s network and there is no reason to expect the balance between these payments to reflect the costs Telstra incurs as a result of the COLR.

8. It is efficient to spread the recovery of common costs over as many customers as possible, and this, in conjunction with the equitable principle that those who benefit from a service should contribute toward its costs, suggests all beneficiaries of the IEN common cost should contribute towards its recovery. It is also efficient and equitable to recover the attributable IEN COLR costs from those customers who cause them (being, by definition, customers supplied by access seekers using ULLS or SSS). Furthermore, in the absence of contributions toward these costs from ULLS and SSS prices, (1) a customer might use ULLS or SSS-based service even though the social costs (which are the sum of the costs necessarily borne by Telstra and by access seekers) would be higher as a consequence; and (2) both access seekers and Telstra will receive inefficient investment signals.
9. The rest of this report proceeds as follows:
 - 9.1. Section C summarises Telstra's COLR obligation and the penalties Telstra faces if it does not satisfy this obligation.
 - 9.2. Section D discusses IEN costs that are not recovered when end users switch to services supplied by access seekers using ULLS or SSS. In particular, Telstra forgoes cost recovery toward common IEN costs (discussed in section D.1) and attributable IEN COLR costs (discussed in section D.2).
 - 9.3. Section E considers COLR obligations imposed on firms in other industries and jurisdictions.

B. EXPERTISE

10. I have since the end of 2004 been Vice President, Head of CRA International Australia and CRA International's Asia-Pacific Competition practice. Between 1998 and 2004 I was the Managing Director of the Network Economics Consulting Group ("NECG"). In these roles I have provided economic advice to government bodies and major corporations in Australia, New Zealand and the European Union in a wide range of industries, including telecommunications, electricity, aviation, surface transport and financial services. A significant proportion of this work has involved research on issues related to the estimation of service costs and examination of issues related to regulation of the prices which firms can charge (see Appendix A).
11. In March 2004, I was appointed as a member of the Australian Centre of Regulatory Economics (ACORE) Advisory Group. The Advisory Group advises the Board on matters pertaining to regulatory activities. I am also Adjunct Professor of Economics at the National University of Singapore.
12. In March 2005 I was appointed to a taskforce by the Prime Minister to identify bottlenecks in the operation of Australia's infrastructure that may impede Australian exports.

13. I have provided expert testimony before the Australian Competition Tribunal (“ACT”), Federal and Supreme Courts in relation to a number of Trade Practices and competition matters. Key recent examples of this testimony include:
- The AGL Loy Yang merger case before the Federal Court;
 - The Qantas/Air New Zealand appeal to the ACT on the decision by the ACCC to reject a proposed strategic alliance;
 - An appeal by Qantas to the ACT in relation to a decision by the NCC not to declare Sydney Airport;
 - The Baxter Healthcare bundling case before the Federal Court;
 - The Duke Energy access arrangements case before the ACT;
 - The Epic gas pipelines access pricing case before the WA Supreme Court (further details are provided in Appendix A).
14. Between 1987 and 2003, I assisted Governments in Australia and overseas on matters related to competition policy. In 1999, I chaired the Australian Intellectual Property and Competition Review Committee set up by the Federal Government. This committee reviewed Australia’s intellectual property laws as they relate to competition policy. In July 2001, I was appointed by the Attorney General of New Zealand as a lay member assisting the New Zealand High Court in cases involving appeals from decisions of the Commerce Commission and in other matters under the Commerce Act 1986 (NZ). Between 1993 and 1997 I was an advisor to the Australian Trade Practices Commission (now the ACCC).
15. Between 1987 and 1995 I held teaching positions at a number of leading institutions, including Visiting Professor at the Kennedy School of Government at Harvard University (2 years) a Professor at the Centre for Research in Network Economics and Communications at the University of Auckland (2 years) and a Professor in the Graduate School of Management at Monash University (3 years). I have also taught at the Ecole Nationale de la Statistique et de l'Administration Economique in Paris.
16. The final area of expertise on which I have relied upon in the preparation of this report is in the area of network economics. Network economics encompasses the study of costs, investment, financing, competition and regulatory policy, as they arise in network industries. A network industry is any industry that depends on a physical or virtual network, including electricity, telecommunications and transport of all types. An understanding of network economics in general and regulated telecommunications industries in particular, has been useful in preparing this report. In that regard, my appointment as the inaugural BellSouth Visiting Professor of Network Economics at the Centre for Research in Network Economics and Communications at the University of Auckland provided me with an opportunity to review and apply the latest scholarly research related to the economics of networks, including pricing issues.
17. I have also completed numerous consultancy assignments for telecommunications companies in Australia, Italy, New Zealand and Latin America (see Appendix A).

C. TELSTRA'S COLR OBLIGATIONS

18. A COLR obligation requires a provider to supply certain types of services to any customer that requests them. The obligation is similar to an insurance policy which guarantees that a source of supply will always be available in the event of a customer's need, regardless of the customer's circumstance. Telstra has an obligation to be the COLR for all end users, including those who acquire retail telephony services from competing carriers using ULLS and SSS.
19. The Minister of the Department of Communication, Information Technology and the Arts has determined that Telstra is the Primary Universal Service Provider ("**PUSP**") for all areas within Australia. This means that Telstra is required to make STS reasonably available to all end users on an equitable basis.⁸
20. Telstra's obligation as the PUSP is reinforced by a number of measures:⁹
- 20.1. Should Telstra fail to meet its PUSP obligations, it would be liable to, *inter alia*, the issuance of remedial directions¹⁰ or formal warnings¹¹ by the Australian Communications Authority, the imposition of further licence conditions by the Minister,¹² the issue of restraining or performance injunctions by the Federal Court¹³ or the imposition of pecuniary penalties of up to \$10 million for each contravention.¹⁴
- 20.2. Telstra is subject to a Customer Service Guarantee ("**CSG**"),¹⁵ which requires Telstra to meet certain performance standards, including connection of customers to its network within specified time periods.¹⁶ If these time periods are not met, Telstra is required to make payments to end-user customers.

⁸ s9(2)(a) of the Telecommunications (Consumer Protection and Service Standards) Act 1999.

⁹ This section is based on Section C2.4 of *Telstra's Submission in Support of the ULLS Monthly Charges Undertaking*, dated 13 December 2004, which provides a summary of Telstra's COLR obligations in Australia.

¹⁰ s69 of the Telecommunications Act 1997.

¹¹ s70 of the Telecommunications Act 1997.

¹² s63 of the Telecommunications Act 1997.

¹³ s564 of the Telecommunications Act 1997.

¹⁴ s570 of the Telecommunications Act 1997.

¹⁵ *Telecommunications (Customer Service Guarantee) Standard 2000 (No. 2)*.

¹⁶ These performance standards are contained in Telstra's USO Standard Marketing Plan, which is required to be prepared by Telstra pursuant to the Telecommunications Act 1999.

- 20.3. The Network Reliability Framework (“**NRF**”), which forms part of Telstra’s licence, obliges Telstra to report certain cases of network failure to the Australian Communications Authority (“**ACA**”) and to undertake remedial action.¹⁷ Telstra is subject to penalties of up to \$10 million for non-compliance with the NRF,¹⁸ together with the other potential liabilities referred to above.
21. As Telstra’s COLR obligation is not only legally enforceable against Telstra, but breach of it carries the risk of severe penalty and other liabilities, Telstra has no choice but to incur the expenses necessary to meet its COLR obligations (which includes maintaining the CAN and the IEN). Telstra has this obligation, whether or not an end users’ traffic currently uses Telstra’s IEN.

D. RECOVERY OF IEN COSTS

22. Telstra’s COLR obligation requires it to bear the IEN common and attributable IEN COLR costs identified in paragraph 5 above. Historically Telstra largely recovered its IEN costs from all IEN users, either through retail or wholesale call prices. However, in the absence of a contribution to IEN costs being imposed on ULLS and SSS, retail consumers supplied via ULLS, or using VOIP over SSS, essentially make no such payments.¹⁹
23. Further, Telstra cannot recover the IEN common and attributable IEN COLR costs by directly charging end users at the time when they switch to Telstra’s STS, for at least two broad reasons:
- 23.1. Telstra’s capacity to set connection prices is limited by its price caps.
- 23.2. Discriminatory prices could be seen as making the ULLS or SSS less attractive; create customer and political anger as such prices might be perceived as gouging; be generally difficult to effect since switching customers are likely to be highly price sensitive; and be specifically difficult in the case of SSS customers using VOIP, since switching by such customers could not be readily identified.

¹⁷ Carrier Licence Conditions (Telstra Corporation Limited) Declaration 1997, conditions 24-28.

¹⁸ Telecommunications Act 1997, s570(3).

¹⁹ ULLS and VOIP SSS suppliers do pay a PSTN OTA price for calls that terminate on Telstra’s CAN, but they also receive a similar fee for calls that terminate with their end user customers. On average such fees would be expected to net out, but even if they do not, the difference between the two flows is likely to be small, and may not favour Telstra.

24. This section demonstrates that both efficiency and equity require that ULLS and SSS include a contribution to the IEN common and attributable IEN COLR costs. The contribution from ULLS and SSS customers towards the IEN common costs is discussed in section D.1, and the recovery of attributable IEN COLR costs in section D.2.

D.1. FORGONE CONTRIBUTION TO IEN COMMON COSTS

25. Telstra must incur the IEN common costs, even if it provides no other wholesale or retail services beyond a COLR service,²⁰ since it does not have the option of withdrawing from its COLR obligation.²¹
26. Customers of ULLS and SSS access seekers benefit from this investment by Telstra, because it provides the access seekers' end user customers with insurance: they have the option of switching to Telstra's STS at any time, reducing the risks they bear when purchasing STS or substitutes for STS (for example, on VOIP) from an access seeker. This insurance also benefits access seekers, since their customers' willingness to pay for the access seekers' telephony services is greater than it otherwise would be.
27. Since access seekers' customers benefit from the COLR insurance, it is equitable for access seekers' customers to pay, through ULLS and SSS prices, for IEN common costs necessarily incurred to supply this insurance. This is especially so given that Telstra's PSTN users contribute to the recovery of the IEN common costs through the payment of the IEN component of retail and wholesale call prices.
28. It is also efficient to spread the recovery of the IEN common costs over as many customers as possible, again suggesting cost-recovery through ULLS and SSS prices. The wider the funding base is (that is, the funding base of the common cost, which is the service range and volume of output over which the common costs are imposed), the lower the per-unit common cost 'tax' needs to be. Since the distorting effect of a tax increases more than proportionately with the level of the tax rate, the reduction in the per-unit tax permitted by a wider base increases efficiency.²²

²⁰ As is the nature of a common cost, Telstra incurs the common IEN cost even if no access seekers supply retail service using ULLS. However, as argued in the remainder of the main body of this section, any user of the COLR insurance shares the IEN common cost and should contribute toward its recovery, just as others that share this cost, such as Telstra's STS users, contribute toward its recovery.

²¹ In the case that Telstra only provides a COLR obligation, the IEN common costs would be attributable to that obligation. In economics such costs are still common in that if Telstra were to provide another service that relied on the IEN, such as STS, then it would not need to re-incur these costs. Instead, they would be shared between STS and the service provided in accordance with its COLR obligation.

²² Cullis, J. & Jones, P. 1992, *Public finance and public choice: analytical perspectives*, McGraw Hill, Berkshire, p. 214, note 3.

29. It would be inefficient for customers purchasing STS via ULLS or SSS, but still benefiting from the option of returning to Telstra's IEN, not to contribute to the unavoidable costs of that IEN. In effect, in the absence of such a contribution, a customer might use an ULLS or SSS-based service even though the social costs (which are the sum of the costs necessarily borne by Telstra and by access seekers) would be higher than remaining with Telstra.
30. More specifically, Telstra would continue to incur the IEN common costs, and at the same time the access seeker would incur the costs of providing the retail services over ULLS or SSS. The end user should only switch if the sum of these costs²³ is less than the costs of providing service to that end user using Telstra's IEN. However, if the access seeker (and so ultimately the end user) does not make any contribution to the common costs of the IEN, the end user could see price signals that indicate an STS supplied by an access seeker is cheaper so long as the incremental costs associated with provision of the ULLS or SSS, plus the private costs of the competitor, are covered. This price would not account for Telstra's IEN common costs, which amount to a residual tax imposed on Telstra (and if they are to be recovered, on any remaining users on Telstra's network). As a consequence, consumption could take place where efficient cost-covering prices would ordinarily prevent it.
31. In addition, both access seekers and Telstra will receive inefficient investment signals. When the prices of ULLS or SSS lie below their economic costs because they exclude contributions to IEN common costs, access seekers would be disinclined to invest in alternative CAN facilities even if it was efficient to do so. Instead they would prefer to use Telstra's facilities and force Telstra to compete at prices below economic costs. As a result, Telstra would find that its CAN and IEN investments do not result in cost recovery.²⁴

23 Taking account of any offsetting quality differentials.

24 Telstra's COLR obligation also covers customers supplied on a competitively provided CAN, so ideally these customers should help cover Telstra's COLR costs. This is clearly not possible other than via a USO-type funding arrangement. However, the distortion caused by the absence of a COLR contribution from these customers is minimal because COLR demand from these customers does not have the same potential for realisation as COLR demand from customers purchasing services based on ULLS. This is because a firm that supplies its own CAN infrastructure has much stronger incentives to retain customers than a competitive provider using ULLS. CAN infrastructure is largely sunk in comparison with the infrastructure necessary to supply service using ULLS. Consequently, a supplier of CAN infrastructure faces strong incentives to cut price and hold the customer since any revenue above its variable costs is (forward-looking) profit (and note this is true even if the original supplier goes out of business, since the sunk asset can still be purchased at a discount from the bankrupted firm's creditors). In contrast, an ULLS supplier, having not sunk similar costs in CAN infrastructure, can more readily cut its losses by dropping some or all of its ULLS customers (making them much more likely to exercise COLR demand).

32. Moreover, if the customer that uses STS via ULLS or SSS does not contribute to IEN common costs, then both retail and wholesale call prices paid by remaining IEN customers must rise to ensure overall cost recovery. However, it is less efficient for those prices to rise than for ULLS and SSS customers to contribute to the pool of common IEN costs, because an increase in Telstra's retail and wholesale call prices may simply provoke further migration from Telstra's IEN based services to ULLS and SSS, aggravating the cost recovery failure.²⁵
33. It is therefore consistent with the statutory criteria for ULLS and SSS prices to include a contribution to the common costs of the IEN.

D.2. FORGONE RECOVERY OF ATTRIBUTABLE IEN COLR COSTS

34. The preceding section set out why ULLS and SSS prices should include a contribution toward the common costs of Telstra's IEN. This section sets out why any attributable IEN COLR costs that Telstra must incur to satisfy its COLR obligation should also be recovered from ULLS and SSS prices.
35. The COLR obligation requires Telstra to incur attributable IEN COLR costs (as defined in paragraph 5) so as to have available capacity to meet demand from access seekers' customers that wish to switch toward Telstra's STS.²⁶ The amount of additional capacity required to satisfy Telstra's COLR obligation depends on the number of customers that might switch to Telstra and the extent of the capacity required to accommodate their demand.
36. The costs associated with building and maintaining spare capacity in Telstra's IEN to meet its COLR obligations should be borne by the primary beneficiaries of that investment. The primary beneficiaries are users of telephony services who may switch from ULLS or SSS-based access seekers to Telstra. Telstra insures these end user customers against dissatisfaction with, or failure of, their chosen carrier. The availability of such insurance also augments the demand for end user telephony services that access seekers face. Consequently, their own demand for ULLS and SSS is also increased.

²⁵ Moreover, taxing the remaining customers on Telstra's network to cover the costs of the COLR is less efficient than spreading the same tax more widely.

²⁶ This is true even after allowance is made for standard provisioning for future capacity. Telecommunications investment, almost without exception, involves substantial economies of scale, with the incremental cost of providing additional capacity at the time of initial investment being well below the cost of incrementing capacity in smaller units later. Hence if demand is expected to rise or vary over time, it is efficient for carriers to invest in more capacity than expected demand would require. This implies that, even in the absence of a COLR obligation, commercially sound investment includes some "excess" capacity. However, this capacity does not reduce the additional required investments Telstra would need to make when it faces a COLR obligation. Rather, the COLR obligation means that network capacity, including spare capacity, needs to be scaled up to handle possible COLR demand.

37. From the perspective of equity as well as efficiency, the costs of the attributable IEN COLR costs should be captured in ULLS and SSS prices, which will be passed on to retail consumers. Equity requires that the beneficiaries of the service—that is, those benefiting from the provision of this insurance—pay the service's costs (rather than taxing those who, at best, only peripherally benefit from the service). It also requires that ULLS and SSS access seekers not be given an artificial advantage over their rivals by being subsidised (in this case through the provision of insurance). Efficiency also requires that no subsidy be given, since, in accordance with standard price theory, a subsidy will inefficiently distort choice toward ULLS and SSS-based supply.^{27, 28}
38. It would be inefficient for customers purchasing STS supplied over ULLS or SSS not to pay for the IEN COLR costs attributable to them. In the absence of ULLS and SSS prices including these costs, retail prices would likely fall below the social costs of the STS (which are the sum of the costs necessarily borne by Telstra and by access seekers). As a result, some customers would use ULLS or SSS-based service even though the social costs are higher than the customers' valuation of the service.

D.3. RECOVERY OF TOTAL FORGONE IEN COSTS

39. When retail customers purchase services from access providers using ULLS and SSS instead of Telstra's STS, then Telstra fails to recover all of the IEN common cost and the attributable IEN COLR costs.
40. Telstra has estimated the forgone recovery of its IEN cost in its ULLS Monthly Submission by calculating the average PSTN OTA contribution to long-run incremental IEN costs per customer as estimated by the PIE II model.²⁹ That is, Telstra's estimate of the foregone IEN costs per line is simply the total incremental cost of the IEN divided by the number of copper lines in use. For the purposes of this report I accept that the PIE II model provides accurate estimates of total IEN incremental costs.
41. Telstra's total IEN incremental cost estimate is a reasonable estimate of the IEN common and attributable IEN COLR costs defined in paragraph 5 above. As described in Appendix B, the per COLR subscriber cost derived from this cost estimate is a good approximation of the contribution Telstra would need from retail customers supplied via ULLS to recover the full cost of its IEN.

²⁷ Any pricing of ULLS and SSS that does not cover these services' direct costs, including the attributable IEN COLR costs, would subsidise these services relative to other technologies.

²⁸ The comment at footnote 24 also applies here.

²⁹ Telstra has not estimated the forgone IEN costs in its SSS Monthly Charges Submission in support of its 13 December 2004 undertaking.

42. However Telstra's estimates of those costs are likely to be understated because they assume that total demand is split equally across all end user customers. ULLS and SSS end user customers are likely to be heavier than average users of telephony services. The forgone contribution from these customers would consequently likely be greater than the average contribution which the estimates reflect.

E. COLR OBLIGATIONS IN OTHER INDUSTRIES AND JURISDICTIONS

43. The COLR costs that Telstra fails to recover due to ULLS and SSS ought to be recovered as part of ULLS and SSS prices. This view is largely supported by the approach in other industries and jurisdictions.
44. COLR obligations are a feature of a wide range of industries. They are often, although not always, a social policy mandated by legislation or regulation or the threat of such legislation or regulation. They invariably impose a financial burden on the COLR or insurance provider. Examples of some COLR obligations are listed in Table 1 with further detail provided in Appendix C. In each example, the COLR provider is permitted to recover the costs of its COLR obligation. As in these examples, sensible policy would allow Telstra to recover the costs of its COLR obligation too.

Table 1: Review of COLR obligations

Industry	COLR obligations and recovery of COLR costs
Gas and electricity retailers in Victoria	<p>The Essential Services Commission (ESC) stipulates the COLR in gas and electricity retail licences. A COLR incident occurs when a retailer's licence is revoked or it is deregistered as a market participant.</p> <p>The <i>Gas Industry Act 2001</i> and the <i>Electricity Industry Act 2000</i> require the ESC to have regard to "the risks and costs associated with the [COLR] requirement" when approving COLR tariffs for retailers.</p> <p>The ESC most recently considered COLR costs would include "the purchase of additional electricity or gas in the wholesale market, the payment of regulated charges and other incremental retail operating costs such as increased administration and staffing expenses." The ESC is yet to set COLR tariffs.</p>
Electricity distributors in South Australia	<p>The <i>Electricity Act 1996</i> imposes COLR obligations on electricity distributors in South Australia.</p> <p>The South Australian regulator (ESCOSA) developed a framework within which the COLR distributor is required to set customer charges, so that it remains in an economically neutral financial position in relation to providing the COLR function.</p>
Electricity retailers in NSW	<p>The obligations regarding the COLR scheme in NSW are provided within the <i>Electricity Supply (General) Regulation 2001</i>.</p> <p>In NSW, COLR retailers are required to supply customers under the standard form supply contract that is applicable to the supply district of the customer. In addition to the charges under that contract the retailer may also require the transferred customer to pay a last resort fee of \$50.³⁰</p>

³⁰ *Electricity Supply (General) Regulation 2001* (NSW) reg. 62.

Industry	COLR obligations and recovery of COLR costs
United States electricity retailers	<p>In US electricity markets, COLR obligations are imposed on providers to ensure continuity of service in the event that customers' chosen retailers cease to supply them with electricity. This obligation is broader than that in Victoria, since it covers a wider range of situations where a retailer might withdraw from service, for instance, when customers refuse to pay their bills.</p> <p>The Pennsylvania Public Utility Commission allows COLR providers to recover all reasonable, identifiable costs associated with providing default service.</p>
NSW Workcover insurance	<p>Employees in NSW can purchase private health insurance, which protects them against workplace injury. Regardless of whether they have private insurance or not, all employees are insured against workplace injury, by regulation, under the Workcover scheme. Thus, Workcover is a form of insurance of last resort.</p> <p>The premiums for Workcover insurance are regulated and intended to cover the costs of the insurer of last resort obligation.</p>
Queensland compulsory third party vehicle insurance	<p>The Nominal Defendant is a corporation that acts as a COLR for uninsured or unidentified persons who, due to negligent driving, injure a third person.</p> <p>The Nominal Defendant recovers the cost of its COLR obligation through an \$8/month levy collected from all insured motorists.</p>
Trade finance	<p>Trade vendors often act as lenders of last resort for their clients on a voluntary basis, to satisfy temporary liquidity needs.</p> <p>Lenders of last resort are compensated for the cost of their COLR status with relatively high interest rates. There is evidence that vendor finance interest rates are as high as 44% per annum in the US.³¹</p>

Dated: 25 May 2005

HENRY ERGAS

³¹ Cunat, V. (2004), "Trade Credit: Suppliers as Debt Collectors and Insurance Providers," *mimeo*, 13 February 2004.

APPENDIX A: HENRY ERGAS - RECENT EXPERT TESTIMONY AND TELECOMMUNICATIONS EXPERIENCE

45. I have extensive international experience advising government bodies and major corporations in Australia, New Zealand and the European Union. Following is a selection of my recent expert testimony and telecommunications related projects with which I have been involved:

- (a) The successful application by the Australian Gas Light Company, to the Federal Court of Australia, seeking a declaration that its acquisition of electricity generator Loy Yang A would not substantially lessen competition for the purposes of section 50 of the TPA. My expert testimony on behalf of AGL was influential in Justice French's decision, (2003).
- (b) I provided expert testimony in a successful appeal on behalf of Air New Zealand and Qantas Airways to the ACT in relation to their application to enter into a strategic alliance, (2004).
- (c) I provided expert testimony on behalf of Qantas Airways in an appeal to the ACT in relation to a decision by the National Competition Commission not to declare Sydney Airport.
- (d) I provided expert testimony on behalf of Baxter Healthcare before the Federal Court, which was alleged to have engaged in anti-competitive bundling activity, in breach of s 46 of the Trade Practices Act, which prohibits the taking advantage of substantial market power, as well as s 47, which prohibits exclusive dealing that has an anti-competitive effect, likely effect or purpose.
- (e) I provided expert testimony on behalf of Duke Energy to the ACT, which subsequently ordered that the Eastern Gas Pipeline could operate outside the National Gas Access Code. My testimony was influential in the ACT's conclusion that coverage of the Eastern Gas Pipeline would not promote competition in either upstream or downstream markets to a greater extent than the existing voluntary access offered by Duke under Part IIIA of the Trade Practices Act 1974, (2003).
- (f) Expert testimony on behalf of Alinta Gas in the Epic Dampier to Bunbury natural gas pipeline proceedings before the WA Supreme Court. The owner (Epic Energy (WA) Nominees Pty Ltd) and operator (Epic Energy (WA) Transmission Pty Ltd) of the pipeline sought, amongst other things, to set aside the June 2001 draft decision of the Independent Gas Pipelines Access Regulator in Western Australia in respect of proposed access arrangements for use of the pipeline by third parties.
- (g) Since the early 1990s, I have advised Telstra and participated in the public debate on a range of regulatory and competition issues. This work includes:

- International Benchmarking of Telstra's Prices for PSTN Originating and Terminating Access Services in support of Telstra's core service undertakings, (2003)
 - Benchmarking and estimating the weighted average cost of capital for major international telecommunications' carriers to support Telstra's appeal of the ACCC's decisions on the price of access to the Telstra public switched telephone network, (2001).
 - An analysis of the costs and benefits of increasing the customer service guarantees (CSGs) and the free provision of directory assistance services by Telstra, (2001).
 - A number of studies of the costs and benefits associated with different access pricing arrangements as they relate to declared services in Australia, including into PSTN originating and terminating access, the unconditioned local loop service, GSM termination services, local and mobile number portability, data services such as ISDN and DDAS and the local carriage service, (1998–2002).
- (h) Outlining the pricing principles that should be resident in a pricing model and reviewing a pricing model for internet peering in light of these principles, (2002).
- (i) Preparing submissions for Telecom Italia on the new European telecommunications regime, and advising that corporation on an ongoing basis on a wide range of regulatory and competition issues. This includes provision of expert advice and a report on behalf of Telecom Italia during 2004 in relation to the Autorita' Garante della Concorrenza e del Mercato's (AGCM) recent investigation into whether Telecom Italia's pricing at both the wholesale and retail levels amounted to an abuse of dominant position under Article 3 of the Italian general antitrust laws. This report formed the basis of Telecom Italia's recent successful appeal of the AGCM's decision to the Administrative Court (TAR).
- (j) Advising a major US telecommunications corporation on regulatory issues related to its mobile telecommunications operations in Latin America, (2002).
- (k) Analysis for Telecom NZ of the costs and benefits of the Australian telecommunications regulatory regime and an analysis of the costs and benefits of regulating a range of communications services in New Zealand, (2000).

APPENDIX B: AN ALGEBRAIC REPRESENTATION OF UNRECOVERED IEN COSTS ABSENT A CONTRIBUTION FROM ULLS AND SSS PRICES

46. This appendix first expresses algebraically the common and attributable IEN COLR costs that are unrecovered by Telstra absent a contribution to them in ULLS and SSS prices. It then relates this IEN deficit to the deficit estimated by Telstra using the PIE II model.
47. Consider a situation in which Telstra services a STS customers (some of which may be supplied indirectly through resale services), and ULLS access seekers supply b customers. Further, assume the COLR demand attributable to the b ULLS-based customers is $c \leq b$ (since some ULLS lines may not be used for voice or VOIP, and COLR demand c need not involve all ULLS voice and VOIP lines switching to Telstra's STS).
48. On a forward looking basis, IEN costs without ULLS as an approximation are $C(a + b)$,³² which would be recovered on an average per line basis through IEN charges equal to $C(a + b)/(a + b)$.³³
49. Forward looking IEN costs with ULLS are $C(a + c)$, taking account of the COLR obligation. On face value one might conclude that these costs should be distributed through per line charges equal to $C(a + c)/(a + c)$,³⁴ but this is problematic for two reasons. First notice that economies of scale imply that

$$\frac{C(a+c)}{a+c} > \frac{C(a+b)}{a+b}.$$

³² This is an approximation because b includes ULLS that carry no voice services. This leads to an understatement of the costs attributed to ULLS in this appendix (see footnote 36). The approximation also renders pricing of ULLS lines practicable (see footnote 35).

³³ It is helpful to assume that group a , b and COLR c customers are on average similar in demand and attributable cost attributes. This implies that if the average per line cost recovery of $C(a + b)$ is $C(a + b)/(a + b)$, then the average per line cost recovery from group a is also this, and similarly for group b . Note the assumption leads to an understatement of the costs attributable to ULLS-based customers, in terms of their COLR demand, as their demands are on average greater than average demand of group a (since, to gain economies of scale, ULLS access seekers will seek out high demand customers).

³⁴ This implicitly assumes a per line common cost allocation key (so costs are divided by $a + c$). This approach proportionally allocates only $c/b(a + c)$ of common costs to each b customer, less than the $1/(a + c)$ costs allocated to each a customer. A per customer cost allocation key, which would divide common costs by $a + b$, would spread common cost recovery more broadly, allocating an equal share of common costs to all customers. However, the actual division between direct and common costs in $C(a + c)$ is unknown. As a result, $C(a + c)/(a + b)$ would tend to over allocate direct costs to group b , since the direct costs attributable to b are caused by the incremental capacity necessary to supply c , not b , lines. Even so, this overstatement would be small as common costs are large relative to direct costs.

Consequently, this allocation would impose the costs of ULLS on customers who gain no value in the choice offered by ULLS access seekers, including customers who live in areas ULLS access seekers ignore, and customers access seekers exclude by price discrimination. It is true that some of Telstra's STS customers with high levels of demand may see some benefits if ULLS-based competition forces Telstra to cut its prices to these customers (using the same forms of price discrimination access seekers will use to ensure that such price cuts are only of value to high demand customers). However, in the long run this will lead to the imposition of higher IEN charges on all of Telstra's STS customers, as a reduced contribution from high demand customers will increase the IEN deficit. The increase in IEN charges will at least partially offset the gains to those users who experience price reductions, but will force all other Telstra users, who gain no benefits from the availability of ULLS, to further subsidise the creation of ULLS.

50. Second, there are $b > c$ ULLS-based customers, so the costs of $C(a + c)$ must be distributed among $a + b$, rather than $a + c$, customers.³⁵

51. If the per line IEN contribution from Telstra's STS customers is set to $C(a + b)/(a + b)$, then those customers that gain no benefits from ULLS supply do not pay for it (instead their payments are the same as if there was no ULLS).³⁶ This leaves an IEN deficit due to ULLS of

$$C(a + c) - \frac{a}{a + b} C(a + b).^{37}$$

³⁵ As noted, not all ULLS lines are used for STS and/or VOIP, however, it would be administratively difficult to set differential prices based on whether the ULLS line is used to carry some voice telephony or not. This would require distinguishing when an access seeker supplies STS, and which ULLS broadband lines do and do not use VOIP. The latter task would be made more difficult by differential ULLS prices as these would encourage concealment of VOIP use.

³⁶ Since b includes ULLS that do not carry voice traffic, this overestimates the costs to be allocated to Telstra's a voice customers, and consequently understates, in what follows, the required contribution from ULLS.

³⁷ This amount does not allow for either (1) the fact that average COLR demand is likely to be higher than Telstra's average STS demand (see footnote 33 above), and (2) the reduced contribution from high demand customers that will occur due to access-seeker competition (see paragraph 49 above).

52. Since the expected period over which COLR demand c would be realised is likely to be small (and thus the revenue received from realised COLR demand is also small), the expected deficit Telstra faces is close to the expression of the IEN deficit in paragraph 51 above.³⁸
53. I now turn to Telstra's estimate of the IEN deficit expressed in paragraph 51 above. I have been instructed that Telstra forecast a , Telstra's total STS (including resale services) demand, and then used the PIE II model to estimate $C(a)$, the long run incremental cost of the IEN when a customers are supplied. I note that focusing on $C(a)$ rather than $C(a + c)$ is conservative, since $C(a) < C(a + c)$, and also minimises controversy, since the assumptions necessary to estimate COLR demand c , given ULLS supply b , would be contentious.
54. Telstra then forecast b , the number of ULLS it would provide. Finally, Telstra calculated the per line contribution to IEN costs that each of the b ULLS should make as being:

$$\frac{C(a)}{a}.$$

55. Expressed as an aggregate, Telstra estimated the total contribution toward IEN costs from the b ULLS as:

$$\frac{b}{a}C(a).$$

38

Assume the probability of the COLR demand c being realised is fifty percent sometime over the next ten years, and Telstra would need to meet the COLR demand c for 2 years before competition again claimed back these customers. In that case, Telstra's expected deficit would be approximately 90 percent of the expression at paragraph 51 above: if the COLR demand is realised Telstra earns access charges from ULLS customers for two of ten years (when it needs those payments in each and every year), and the probability of Telstra receiving such a payment is 50 percent, so its expected payments (discounting aside) are fifty percent of the expression at paragraph 51 divided by five, that is, ten per cent of the expression at paragraph 51. This leaves an expected deficit of 90 percent of the expression at paragraph 51.

In fact, Telstra's deficit would probably exceed ninety percent of this expression for two reasons. First, if Telstra faces as much as a fifty percent probability of experiencing a COLR demand of c in the next ten years, then the IEN would have to be provisioned not only to meet this demand, but also to meet higher COLR demands with lower, but nontrivial, probabilities. For example, consider the COLR demand $c' > c$, with a ten percent probability of being realised in a ten year period. The relevant network provisioning for c' would be higher than for c with an expected deficit of 98 (= 100 - 10/5) percent of the expression at paragraph 51 above (replacing c with c'). Second, Telstra is unlikely to maintain the gains in market share it makes due to the realisation of COLR demand over two full years. For example, if, due to a COLR surge, Telstra gains overnight c new customers, but loses at a steady rate $c/2$ customers by the end of each of the two subsequent years, then over the course of the two years Telstra would have obtained average revenues equivalent to one full year of COLR demand at level c (average COLR demand over the two years is $(2c - 0)/2$).

56. I now show that $\frac{b}{a}C(a)$, Telstra's estimate of the total ULLS contribution is a good approximation of $C(a+c) - \frac{a}{a+b}C(a+b)$, the expression of the IEN deficit in paragraph 51 above.

57. It is difficult to directly relate $\frac{b}{a}C(a)$ unambiguously to $C(a+c) - \frac{a}{a+b}C(a+b)$.³⁹

However, it can be shown that $\frac{b}{a+b}C(a+b)$ is an upper bound of

$C(a+c) - \frac{a}{a+b}C(a+b)$,⁴⁰ and that $\frac{b}{a}C(a)$ is greater than this.⁴¹ This implies,

putting aside the conservative assumptions made in arriving at this conclusion,⁴² that Telstra's approach overstates the IEN deficit. However, I demonstrate this overstatement is less than "c-i-c" percent, and on ACCC cost estimates, less than "c-i-c" percent, and hence is small relative to the forecast and modelling errors inherent in making such estimates. For example, it is likely the forecast errors for a and b are well in excess of this,⁴³ to which modelling errors must be added.

³⁹ For example, $\frac{b}{a}C(a) > \frac{b}{a+b}C(a) = C(a) - \frac{a}{a+b}C(a) > C(a) - \frac{a}{a+b}C(a+b)$, suggests that

$\frac{b}{a}C(a) > C(a+c) - \frac{a}{a+b}C(a+b)$, but does not demonstrate this, since

$C(a) - \frac{a}{a+b}C(a+b) < C(a+c) - \frac{a}{a+b}C(a+b)$.

⁴⁰ To see that $\frac{b}{a+b}C(a+b)$ is an upper bound note $C(a+c) - \frac{a}{a+b}C(a+b)$ is at its largest when $c = b$,

thus $C(a+c) - \frac{a}{a+b}C(a+b) \leq C(a+b) - \frac{a}{a+b}C(a+b) = \frac{b}{a+b}C(a+b)$.

⁴¹ To see that $\frac{b}{a+b}C(a+b) < \frac{b}{a}C(a)$ note economies of scale imply $C(a+b) < \frac{a+b}{a}C(a)$, which in turn

implies the upper bound, $\frac{b}{a+b}C(a+b) < \frac{b}{a+b} \frac{a+b}{a} C(a) = \frac{b}{a}C(a)$.

⁴² See footnotes 35 and 36.

⁴³ As an example of the magnitude of forecast errors, the ACCC's forecast, made in 2001, of the number of ULLS lines in each year over the period 2000-01 to 2004-05 ranged between 23.9 per cent and 700 per cent above those in a subsequent forecast made in 2003. See ACCC, 2003, Final Determinations for model price terms and conditions of the PSTN, ULLS and LCS services, October, pp. 80, 87.

58. I obtain the less than “c-i-c” percent estimate of the degree of IEN deficit overstatement by first showing that the difference between the upper bound

$$\frac{b}{a+b}C(a+b) \text{ and Telstra's IEN deficit estimate } \frac{b}{a}C(a) \text{ is less than “c-i-c” percent.}$$

I then show the difference between the upper and lower bounds of the IEN deficit is also less than “c-i-c” percent. The result is that at most Telstra’s estimate of the IEN deficit cannot be wrong by even as much as “c-i-c” percent. The IEN deficit overstatement is further narrowed to between “c-i-c” and “c-i-c” percent when the economies of scale in the IEN are factored into my calculations.

59. Notice that:

$$\frac{\frac{b}{a}C(a)}{\frac{b}{a+b}C(a+b)} < \frac{\frac{b}{a}C(a)}{\frac{b}{a+b}C(a)} = \frac{a+b}{a}.$$

That is, b/a is greater than the percentage difference between the upper bound

$$\frac{b}{a+b}C(a+b) \text{ and Telstra's IEN deficit estimate.}$$

60. Over the time period examined, b/a is never higher than “c-i-c” percent. The gap between a and $a + b$ is largest in the financial year 2005-06, when b takes its largest value. In that year Telstra forecast $a =$ “c-i-c” and $b =$ “c-i-c”.

61. According to the ACCC, conveyance costs rise by one tenth of an increase in calls, and by six percent of a call minutes increase.⁴⁴ As a result, if b customers on average make the same number of calls as a customers, which is probably an understatement,⁴⁵ then these economies of scale imply $C(a + b) =$ “c-i-c” $C(a)$, or that Telstra’s estimate exceeds the upper bound by “c-i-c” percent ($= (a + b)/$ “c-i-c” a).

62. $C(a) - \frac{a}{a+b}C(a+b)$ is a lower bound of $C(a+c) - \frac{a}{a+b}C(a+b)$ since

$$C(a+c) - \frac{a}{a+b}C(a+b) \text{ is at its smallest when } c = 0 \text{ (though this is not at all likely}$$

as it would imply a COLR demand of zero and no need for a COLR obligation).

⁴⁴ ACCC, 2000, A report on the assessment of Telstra’s undertaking for the domestic PSTN originating and terminating access services, July, p. 47 (relying on the NERA model).

⁴⁵ See footnote 33.

63. The gap between $C(a) - \frac{a}{a+b}C(a+b)$ and the upper bound $\frac{b}{a+b}C(a+b)$ is also less than “c-i-c” (and, given the assumptions of paragraph 61 above, equal to “c-i-c”) percent of $C(a)$. To see this note that:

$$\begin{aligned} & \frac{b}{a+b}C(a+b) - C(a) + \frac{a}{a+b}C(a+b) \\ &= C(a+b) - \frac{a}{a+b}C(a+b) - C(a) + \frac{a}{a+b}C(a+b) \\ &= C(a+b) - C(a) \end{aligned}$$

is the incremental cost of moving from supplying a to $a + b$ customers, which, given economies of scale, cannot be greater than “c-i-c” ($= b/a$), and, given the increasing returns to scale reported in paragraph 61 above, equals “c-i-c” percent. However, as $c > 0$, the gap would be smaller than this. Moreover, in the earlier years, where b is much smaller than 2005-06, the difference would be even smaller.

64. Thus without any assumptions of how economies of scale feature in the IEN cost function, Telstra’s estimate of the IEN deficit exceeds the actual deficit by less than “c-i-c” (“c-i-c”+ “c-i-c”) percent of the actual deficit. Given the returns to scale of paragraph 61 above, Telstra’s estimate exceeds the actual deficit by no more than “c-i-c” (“c-i-c”+ “c-i-c”) percent.

APPENDIX C: REVIEW OF COLR OBLIGATIONS

Gas and Electricity Retailers and Distributors in Victoria

65. There are legislative COLR obligations on gas and electricity retailers and distributors in Victoria.
66. Section 34 of the *Gas Industry Act 2001* of Victoria provides for gas retailer and distributor licenses to stipulate a COLR obligation. Under this COLR obligation, the licensee must supply gas to customers of other retailers or distributors whose licenses are revoked or who are deregistered as market participants, on tariffs, terms and conditions approved by the Essential Services Commission.⁴⁶
67. The *Gas Industry Act 2001* also requires the Essential Services Commission to have regard to “*the risks and costs associated with the RoLR requirement*” when approving COLR tariffs for retailers and distributors.⁴⁷
68. The Essential Services Commission acknowledged that retailers and distributors should be allowed to recover the costs of the COLR obligation in its report Review of Gas Access Arrangements: Final Decision. The Essential Services Commission stated:
- “The Commission accepts that it would be appropriate to provide the scope (and certainty) for distributors to recover costs associated with any additional RoLR obligations imposed on them over the 2003-07 access arrangement period. It also accepts that this cost pass-through should relate both to the cost of any up-front activities required (such as installing systems, should such an obligation be imposed), and to the cost of responding to a RoLR event (should such an event arise).”*⁴⁸
69. Almost identical obligations are imposed on electricity retailers and distributors. Section 27 of the *Electricity Industry Act 2000* of Victoria provides the framework to impose COLR obligations on electricity retailers and distributors. Section 27(2)(a) of the Electricity Industry Act 2000 also requires the Essential Services Commission to have regard to “*the risks and costs associated with the [COLR] requirement*” when approving COLR tariffs for retailers and distributors.

⁴⁶ S34(5) of the *Gas Industry Act 2001*.

⁴⁷ S34(2)(a) of the *Gas Industry Act 2001*. This act refers to the retailer of last resort (RoLR), which is a gas retailer that has a COLR obligation.

⁴⁸ The Essential Services Commission refers to the COLR as the ‘retailer of last resort’ (RoLR). Essential Services Commission (2002), *Review of Gas Access Arrangements: Final Decision*, October 2002, at p. 268.

70. Since 21 July 2000, the Essential Services Commission has been considering how to implement the COLR provisions of the *Gas Industry Act 2001* and the *Electricity Industry Act 2000* for gas and electricity retailers.⁴⁹ Most recently it published an issues paper titled *Energy Retailer of Last Resort*. In that issues paper, the Essential Services Commission recognises the costs of the COLR obligation on gas and electricity retailers are likely to include:

“The purchase of additional electricity or gas in the wholesale market, the payment of regulated charges and other incremental retail operating costs such as increased administration and staffing expenses.”⁵⁰

71. Although the *Gas Industry Act 2001* and the *Electricity Industry Act 2000* provide the means for the Essential Service Commission to impose COLR obligations on distributors, the Essential Services Commission decided that the COLR obligations are most likely to fall on gas and electricity retailers rather than distributors, since only one distributor is typically designated to a particular area.⁵¹ Distributors are unlikely to be affected by a COLR incident since the costs of distributing electricity and gas to customers are passed from the old retailer to the new retailer.⁵²

Electricity Distribution in South Australia

72. The *Electricity Act 1996* for South Australia provides the obligation on the distributor to provide COLR services. The Act states part of the distributor’s licence is the following obligation:

“Requiring the electricity entity to sell and supply electricity (on terms and conditions approved by the Commission) to customers of another electricity entity whose licence under this Act to carry on retailing of electricity is suspended or cancelled or whose right to acquire electricity from the market for wholesale trading in electricity is suspended or terminated or who has ceased to retail electricity in the State (a retailer of last resort requirement).”⁵³

73. The requirement is further articulated in clause 19.1 of the distributor’s distribution licence.
74. Clause 8.1 of the South Australian Electricity Pricing Order requires the regulator (the Essential Services Commission of South Australia) to develop guidelines for the purpose of determining the amount the distributor may charge for the sale and supply of electricity should a COLR situation arise.

⁴⁹ See the Essential Service Commission’s website dedicated to the issue: <http://www.esc.vic.gov.au/electricity293.html>, last updated 6 October 2004.

⁵⁰ Essential Services Commission (2002), *Energy Retailer of Last Resort: Issues Paper*, October 2004, at p. 2.

⁵¹ Therefore, there is no risk of a customer switching to a competing distributor and no cost associated with maintaining capacity in case that customer switches back.

⁵² However, the distributor may face some risk of the failed retailer defaulting on any owed distribution use of system payments (DUOS).

⁵³ *Electricity Act 1996* (SA) clause 23 1(n)(xi)

75. Stemming from this obligation the South Australian regulator (ESCOSA) developed the 'Retailer of Last Resort: Pricing and Charging Framework'. In the framework document ESCOSA considered that the costs incurred by the distributor in providing the COLR should be assigned to one of the following 4 categories:
- 75.1. Establishment costs: The cost of establishing the COLR scheme, associated regulatory compliance costs and the costs of securing rights of access to billing and meter reading facilities.
 - 75.2. Energy costs: The cost of electricity purchases from the pool and the costs associated with setting up hedge arrangements
 - 75.3. Variable costs: Costs such as billing, meter reading, bad debts, securing bank guarantees and administration
 - 75.4. Outstanding costs: Costs incurred but not recovered from customers during the COLR period.
76. With this framework the distributor is required to develop the prices and charges that are to be issued to customers for the sale of electricity as the COLR. There is a requirement in developing the charges that the distributor remains in an economically neutral financial position in providing the COLR function.

Electricity Retailers in New South Wales

77. The obligations regarding the COLR scheme in NSW are provided within the 'Electricity Supply (General) Regulation 2001'. The objective of this instrument is to make the regulations under the *Electricity Supply Act 1995*.
78. In NSW, COLR retailers are required to supply customers under the standard form supply contract that is applicable to the supply district of the customer. In addition to the charges under that contract the retailer may also require the transferred customer to pay a last resort fee of \$50.⁵⁴

Electricity in the US

79. In US electricity markets, COLR providers are designated to protect consumers in the event their chosen retailers cease to supply them with electricity. In applicable states, the Public Utility Commission designates the COLR provider and allows that provider to recover its relevant costs through default service retail tariffs.
80. For example, in a recent rule making, the Pennsylvania Public Utility Commission outlined its intention to allow electricity distribution companies to recover the cost of COLR obligations from retail customers:

*"The Commission finds that all reasonable, identifiable costs associated with providing default service should be fully allocated to default service rates "*⁵⁵

⁵⁴ *Electricity Supply (General) Regulation 2001* (NSW) reg. 62.

⁵⁵ Proposed Rulemaking, Pennsylvania Public Utility Commission, [52 PA. Code CHS. 54 and 57], in *Pennsylvania Bulletin*, Vol. 35 (9), 26 February 2005.

81. The Pennsylvania Public Utility Commission proposed a cost recovery mechanism that allows the COLR provider to recover several categories of 'reasonable' costs including capacity and transmission charges associated with transmitting the electricity from generators to consumers requiring default service provision.

Insurance industry

82. COLR obligations are common in insurance markets where demand for insurance is below the social optimum level. In such cases, a residual insurance market exists that is populated by consumers who either privately value insurance at less than the value society places on insuring them or who do not otherwise have access to commercial insurance policies.
83. Several models of insurance exist that are equivalent to the COLR model in utility markets.⁵⁶ Two models are common in Australia – Assigned Risk and Joint Underwriting Association.

Assigned Risk

84. Under the assigned risk model, regulators determine a standard insurance policy and premium and allocate residual consumers to insurance providers. Every insurance provider had to accept its allocation of residual customers and accept any losses.
85. Workers Compensation schemes in Australia are based on this model. The Workers Compensation scheme in New South Wales requires employers to insure all their employees, or otherwise self-insure. Employers choose from a number of licensed insurance providers.⁵⁷
86. The regulated premiums collected by licensed insurers are intended to cover the costs of acting as the insurer of last resort – compensations payments to policy holders, rehabilitation for injured workers and administration costs.

Joint Underwriting Association

87. Under the joint underwriting association model, all insurance providers are jointly responsible for providing insurance to the residual market and share the responsibility for any losses.
88. The residual market for motorists' compulsory third party (CTP) insurance in Queensland is served under this model. The Nominal Defendant is a corporation established under the Accident Insurance Act 1994 to act as an COLR for uninsured or unidentified persons who, due to negligent driving, injure a third person.⁵⁸ The Nominal Defendant recovers the cost of its COLR obligations through an \$8/month levy collected from all insured motorists.

⁵⁶ For a discussion of some of these, see Colton, R. (1998), "Provider of Last Resort: Lessons from the Insurance Industry," *mimeo*, September 1998.

⁵⁷ See <http://www.workcover.nsw.gov.au/FAQs>.

⁵⁸ See <http://www.maic.qld.gov.au/about-maic/nominal-defendant.shtml>, last modified 28 October 2004.

Finance

89. COLR obligations in finance markets are voluntarily provided in the form of trade credit. Trade credit is provided to firms by their vendors when payment for wholesale inputs is delayed. Cunat (2004) describes vendors as "*the lender of last resort if the customer experiences temporary liquidity needs.*"⁵⁹ Vendors will profitably become lenders of last resort when their customers are refused credit from traditional finance companies and when they expect to share the surplus of aiding their customer.
90. Trade creditors are compensated for the costs of their voluntary COLR obligation by relatively high interest rates. Cunat (2004) finds that annualised trade credit interest rates in the US are as high as 44 percent.

⁵⁹ Cunat, V. (2004), "Trade Credit: Suppliers as Debt Collectors and Insurance Providers," *mimeo*, 13 February 2004.