

WALKER WIRELESS LIMITED

**SUBMISSION ON THE COMMERCE
COMMISSION PAPER**

**"APPLICATION OF A TSLRIC PRICING
METHODOLOGY"**

16 AUGUST 2002

EXECUTIVE SUMMARY

1. In the Discussion Paper the Commission addresses in some detail the process and methodology to be applied in calculating the TSLRIC of the provision by Telecom of interconnect pricing.
2. In doing so, the Commission has extracted from the Act and its own analysis efficient outcomes that are sought as a result of the TSLRIC pricing. We believe that, in circumstances where an operator interconnecting with Telecom provides local access services which broadly mirror Telecom's, then interconnect charging based on bill-and-keep will be more likely to achieve the goals and efficiencies set out by the Commission than will any application of TSLRIC pricing.
3. We have set out, in general terms, a proposal for the expansion of the current bill-and-keep rules that will achieve those efficiencies. We have suggested that bill-and-keep be applied on a regional basis rather than on the historical LICA structure that Telecom established to reflect the economics of its SS7 network and retail pricing structure.
4. We understand that the application of bill-and-keep needs to be expanded in a way that prevents arbitrage of operators and ensures that the two parties interconnecting provide similar services. It will be necessary for qualifications to apply, as is the case currently with callsinks and "excess minutes".
5. In summary, we see the benefits of bill-and-keep over TSLRIC pricing being:
 - allowing flexibility for new numbering and retail pricing schemes to reflect new technologies and provide lower pricing for end users
 - costs for the provision of interconnection services lie where they fall, decoupling interconnect prices from costs and providing incentives for efficiencies
 - the regime could establish "regions" which would reflect the efficient level of network duplication – this needs to reflect the economics of both networks, not merely Telecom's SS7 network.
 - it greatly simplifies billing systems and minimises the impact of any error by the Commission in calculating TSLRIC prices.

SECTION 1 - INTRODUCTION

6. In the Discussion Paper, the Commission sets out the framework within which it is required to make decisions on interconnect pricing, and TSLRIC in particular. Section 18 of the Act provides the fundamental basis for decision-making. In addition the Commission has developed a method of assessing pricing structures by considering their likely effect on efficient decision-making.
7. In this paper we have set out a proposal for the expansion of the current bill-and-keep charging structure. We believe that, for interconnection traffic that is symmetrical in its nature, this proposal will better meet the Act's purposes than an alteration to the TSLRIC calculations.

Proposal to apply to symmetrical traffic and services

8. The interconnection services sought from Telecom by other operators can be divided into two broad categories:
 - services symmetrical in nature – such as termination of calls to local numbers
 - services asymmetrical in nature – for example, toll bypass.
9. This difference is reflected in the current interconnect regime as there is an attempt to cover some symmetrical services in the bill-and-keep regime while other services are covered by per call and minute charges.
10. In this paper we set out a proposal for interconnect charges for symmetrical traffic. We recognise that our proposal will not be appropriate for toll bypass traffic and assume that other operators will make submissions on the application of TSLRIC to those services.
11. This model will apply to operators interconnecting with Telecom that provide local access services across regions in a pattern similar to Telecom. The result of providing such services, we believe, will be:
 - the operator will exchange similar volumes of interconnect traffic with Telecom (i.e. its customers will make as many calls to Telecom customers as Telecom customers make to its customers)
 - the mix of traffic will be approximately the same (e.g. local voice, 0800, internet)
 - the busy hours will largely coincide.
12. Another assumption underlying our proposal is that the operator will roll out network in urban and rural areas. To an extent we expect operators' roll-outs to reflect the current models being put forward by various regions and the Ministry of Education in its Project PROBE RFI. These provide, in effect, for coverage within a region that makes available an access service to the vast majority of the region, not merely in the main urban areas. This is the style of roll-out required by a number of RFIs and RFPs issued by regional representatives.

13. This has formed the basis of our response to the Discussion Paper and to the Commission's earlier paper on Interconnect Pricing Methodology.

Comparison with TSLRIC Pricing

14. In section 2.2 of the Discussion Paper the Commission sets out the standards against which the different methods of setting TSLRIC prices will be measured e.g. effect on decisions of access providers to invest in fixed PSTNs. Throughout the Discussion Paper the Commission refers back to these when considering the detailed pricing methodology and the potential for a variety of different cost structures
15. We believe that in doing so the Commission may miss the opportunity to review the interconnect pricing regime more generally, in particular by expanding the bill-and-keep pricing structure. We understand that the Commission considered bill-and-keep in its earlier paper "*Interconnect Pricing Methodology, a paper prepared for the Commerce Commission (New Zealand) by Frontier Economics*". We responded to that advocating bill-and-keep.
16. We have felt it appropriate to develop our discussion in this paper as the concerns raised by the Commission in considering TSLRIC calculations seem to us to highlight the benefits which bill-and-keep pricing would provide. Our reasoning is set out below.

Factors in Commission's Decisions

17. In making its decisions on TSLRIC pricing, the Commission must work within the framework set down by the Act. This includes, in particular, section 18 and Schedule 1 Part 2 "Additional matters that must be considered regarding application of s18".
18. In paragraphs 20 to 25 of the Discussion Paper, the Commission highlights the need to consider the effect of interconnect prices on various types of efficiency – allocative, dynamic and productive. The Commission states its goal of setting interconnect prices to encourage parties to make efficient decisions, in particular the following:
- decisions of access providers to invest in PSTNs
 - decisions of access providers to provide interconnection services in the most cost effective manner
 - decisions of access seekers (or other investors) to duplicate parts of all of an access provider's fixed PSTN
 - decisions of providers to enter and exit telecommunications markets.

SECTION 2 – PROPOSED CHANGE TO THE APPLICATION OF BILL-AND-KEEP

The Current Regime

19. Currently the application of the bill-and-keep rules is very limited – they apply

only to interconnect calls where the calling and the called party are located in the same LICA (as those regions are defined by Telecom) and the call is handed over at the appropriate POI. The rules are subject to exceptions to out-of-balance traffic and calls to callsinks.

20. This regime does not extend to the following calls:
 - calls between LICAs even within a LICA group
 - termination of national calls, even where the call is handed over in the LICA in which the call is to terminate.
21. This gives rise to anomalies between intra-LICA calls terminated in minor LICAs and other calls terminating in major LICAs. Take two examples:

Example 1 - a call which originates and terminates in Kaikoura on different operator's networks; and

Example 2 - a call that originates in Kaikoura and terminates in Christchurch, on different operators networks.

Kaikoura is a minor LICA and is associated with Christchurch, its major LICA. In most cases, the calls terminating in Christchurch and Kaikoura will be handed over in a point of interconnect in Christchurch.

As Example 1 is an intra-LICA the terminating operator is required to convey the call from the POI in Christchurch to the subscriber in Kaikoura at no charge.

As Example 2 is not intra-LICA the terminating operator charges to convey the call from the POI in Christchurch to the subscriber in Christchurch.

22. As this illustrates, the bill-and-keep regime often does not reflect the interconnection service provided by the terminating operator. We believe that it would best achieve the purpose of the Act and set incentives for efficiency by expanding the application of the bill-and-keep regime to address this.

Proposed Change to Bill-and-Keep Rules

23. We believe that bill-and-keep should apply:
 - to all calls terminating on numbers allocated within a region
 - regardless of where the call originated
 - provided the call is handed over at a point of interconnect in that region.
24. There are a number of ways in which regional boundaries may be set, including:
 - Telecom's 24 LICA Groups
 - the 18 regions, as divided in Telecom's phone books
 - the 14 regions established for the Government broadband project.
25. It would make sense to make boundaries created for interconnect pricing, as far as possible, consistent with the boundaries set out in the Government broadband project as:

- roll-out of new networks is likely, given the funding structures proposed, to mirror those boundaries
 - interconnect prices have an effect on the retail prices operators can set. Interconnect prices should not therefore be set in a vacuum but reflect regional boundaries which people are aware of.
26. In time, we believe that the number of regions (and hence points of interconnect) should reduce. Currently, the large number of interconnect regions set down by Telecom reflect the economics of its SS7 network. As operators inevitably migrate to IP networks these economics will change and it will be more efficient to aggregate traffic to a smaller number of interconnect points nationally.
27. We wish to initiate a review of the interconnect regime given that the network we are establishing is IP-based and a smaller number of interconnect points may suit other operators whose networks economics do not reflect Telecom's. It is not necessary for the Commission to rule on this as part of its determination on interconnect pricing as the current model (with 104 LICAs and 24 points of interconnect) demonstrates that interconnect charging boundaries do not have to exactly match interconnection handover boundaries.

Numbering

28. The current bill-and-keep regime greatly restricts the use of numbers. If the bill-and-keep regime is to apply, it must be possible for an operator to identify which of the 104 LICAs each number is allocated to. This is a hangover from Telecom's legacy network and we do not believe the interconnect charging regime should perpetuate this.
29. This paper is prefaced however on use of numbering with a geographic element. If the concept of "regional" interconnect areas are employed numbers could be allocated on a regional basis which would be a more efficient use of numbers.
30. This will permit new numbering schemes for technologies that do not necessarily fit within the existing "fixed" and "mobile" worlds. We anticipate need for a numbering and interconnect scheme which recognises that an increasing number of access methods allow customers to be mobile but which have economics to allow those services to be provided for tariffs which are much more similar to those of the current fixed plans. For example, a subset of the "02" numbering range with allocations of numbers on a regional basis may recognise that customers can be mobile while allowing them the benefits of having a "home" region – such as free calling.
31. The Commission has raised concerns about arbitrage opportunities. We do not believe these will cause significant problems where the party interconnecting with Telecom has a broad-based access network and that concerns can be addressed with qualifications to the bill-and-keep rules. There are precedents for this in the current regime – calls to callsinks and "excess minutes". Suitable protections are discussed in more detail below.

SECTION 3 - THIS PROPOSAL BEST ACHIEVES THE PURPOSES OF THE ACT AND THE GOALS OF THE COMMISSION

32. In the opening paragraphs of this paper we referred to the framework within which the Commission is to make a decision of the Discussion Paper. We believe that the expansion to the bill-and-keep regime will promote competition for the long-term benefit of end-users of telecommunications services in New Zealand.
33. In particular, it will result in signals to encourage efficient decisions on the matters set out by the Commission and will allow operators to offer a wider range of retail prices to end-users.

Provision of Interconnect Services in Most Cost Effective Manner

34. We agree with the Commission that the best way to achieve this is to ensure that interconnection charges received by an operator are not tied directly to their costs. As the Commission says¹:

"To the extent possible, the cost base upon which interconnection prices are set should be 'decoupled' from the access provider's actual costs."

35. Bill-and-keep is a structure that ensures that an operator is not rewarded for having high interconnection costs. Quite the opposite, in the circumstances where 2 operators exchange one million minutes of traffic a month each operator has every incentive to provide that service as efficiently as possible for, not only do they not recover their costs from the other operator but they effectively carry their own costs of terminating another's traffic.
36. This model is particularly important for a new entrant in a market. In rolling out a network an operator must incur considerable capital expenditure with no immediate revenue. The effect of the TSO is add an additional layer of cost to the network with no return. If operators are also required to build into their retail costs the cost to Telecom of providing interconnect services, an operator has very little control over its cost base. Bill-and-keep puts in place the right incentives and rewards for providing interconnection services.

Ensure efficient level of duplication of networks

37. We agree that the interconnect pricing regime needs to give incentives for an efficient level of network duplication and needs to address the Commission's concerns over operators only building networks where it is cheap to do so. We believe that this can be managed by the manner in which bill-and-keep is implemented.
38. The current model provides for physical interconnection on the basis of LICA

¹ Paragraph 23

Groups and for interconnection charging based on the 104 LICAs that Telecom has drawn up throughout the country. We do not believe that this sets incentives for the most efficient level of network duplication.

39. If we were to start from scratch now there are a number of interconnect regimes that could be established. For one extreme, all operators could exchange traffic at a central, national point (mirroring internet peering models). At the other extreme, we could provide for interconnect at every Telecom local exchange or at the foot of each of our base stations. None of these options would be likely to be the most efficient model. We need a regime that reflects the economics and efficiencies of Telecom's network and those of other national operators.
40. The level of duplication encouraged by the interconnection regime should reflect different technologies. The most efficient point of interconnection is unlikely to be at the same place in both networks. This will be the case for a number of reasons including:
- Telecom's network is based on SS7 while Walker Wireless's has an IP core. These give rise to very different economics. This is evidenced by the internet peering model where IP operators aggregate traffic far more than in the SS7 voice world.
 - we have different economies of scale – Telecom is able to aggregate a lot more traffic
 - the percentage of our total volume which is reflected in interconnect traffic will be very different – most calls by Telecom customers will be the other Telecom customers. Most calls by Walker Wireless customers will be the Telecom customers.
41. The level of duplication that is most efficient is likely to be a compromise of the 2 points in the networks. Rules set down by the Commission will determine the level of efficiency. If bill-and-keep continues to apply only at a LICA level then the scope will be limited and the TSLRIC price set will be applicable to most calls. This will magnify any errors in setting the TSLRIC price.
42. For these reasons, we believe that, at least, bill-and-keep should be applied on a regional basis. The size of the regions will result from a consideration of the economics of each network operator.
43. It may also make sense for the setting off of calls to apply on a national basis, provided calls are handed over at a POI at which they are to terminate. This would simplify billing, reducing the likelihood of payments between operators.

Efficient entry to and exit from Market

44. We believe that the extension to the bill-and-keep regime best encourages efficient entry to the telecommunications market in New Zealand for the following reasons:

- it greatly simplifies the billing systems
 - new operators are not faced with compensation Telecom for inefficiencies in its interconnection services
 - new operators are not exposed to a decision by the Commission on TSLRIC that sets costs above an efficient level
 - costs lie where they fall and so new operators have every incentive to provide services efficiently
 - the TSLRIC model requires new operators to support an ageing SS7 network while they are putting in place a modern IP network
 - bill-and-keep will give us greater flexibility to set retail prices.
45. We are very conscious of the fact that the current interconnect regime is very much designed around Telecom's network and the mesh of LICAs which it has created. This problem is compounded as not only does the current regime reflect Telecom's choice of network topology – it also reflects its choice of technology.
46. As our network has, for voice, a VoIP core, conversion is required to enable interconnection between our network and Telecom's SS7 network. Telecom has indicated that it is moving towards implementing an IP core to its network but does not yet have that capability. Therefore, we anticipate Walker Wireless will carry the full burden on converting all interconnect traffic and the cost associated with that.

Administrative Efficiency

47. The current application of bill-and-keep is so narrow as to fail to achieve many of the possible benefits. The rules are applied on a LICA by LICA basis and traffic is required to be matched in each LICA. There is no aggregation within a region or across the country. This means that more billing resource and payments are required than would be necessary if a more aggregated approach was taken.

Flexible Retail Pricing

48. The current regime of interconnect charges cements the complex retail charges that have evolved for historical reasons. Those reasons are not necessarily applicable in the modern IP world.
49. Provided interconnect services are reciprocal, the interconnect charging regime should permit a network operator to set retail prices which reflect its network costs, and should not be dependent of Telecom's network charges and its retail price structure. Such a regime would permit an operator that is more efficient than Telecom to offer lower retail prices and do so in a structure independent of Telecom.
50. The Commission discusses the effect of the TSO on Telecom and how it might be protected via the interconnect regime from being undercut by operators who do

not have similar obligations. We do not believe the TSO obligations impact unfairly on Telecom. The nature of the market is such that the prices all operators can charged are largely constrained by Telecom's line rental charges. With regard to free calling areas, Walker Wireless wishes to expand, not reduce, the areas within which end-users may make free calls.

51. The current interconnect prices (which reflect Telecom's network costs) and structure of prices (which reflect Telecom's LICA boundaries) severely restrict other operators' abilities to do this.

Numbering Efficiency and Flexibility

52. One implication of the current interconnect charges being based on the 104 LICAs is that numbers need to be allocated so that each number can be identified with each one of those 104 LICAs.
53. Expanding the bill-and-keep rules to apply to regions will have a number of benefits. Numbers are a scarce resource and having to allocate codes for each operator for each LICA is a very inefficient use of that resource. Numbers will be used more efficiently where a particular number range can be used across an entire region.
54. Setting bill-and-keep across regions will permit a flexibility of numbering which have the following benefits:
 - it will simplify consistent retail prices across a region making it easier for end-users to understand than the current maze of charges
 - it will permit different use of number ranges or new number ranges to fit new technologies e.g. technologies that are portable but which economics are such as to allow pricing equal to that of the fixed technologies.
 - the bill-and-keep for calls to new number ranges will not cause problems for Telecom from a retail perspective as TCNZ will be able to set the retail prices for these it likes.
55. As explained above, an updated interconnect regime may allow for amended styles of numbering e.g. allocation of "02" numbers between the regions to allow identification of the "home" region of that number and hence establish handover rules and then bill-and-keep pricing.

Needs to be implemented in a way to avoid arbitrage

56. In Section 12.2 of the Discussion Paper the Commission addresses the issue of the interconnection services provided by Telecom and the other operator not being the same. We agree that it is important that arbitrage opportunities are minimised. We believe that most of the issues raised by the Commission will not cause problems in the case of interconnection between Telecom and an operator that provides coverage across a region. Issues highlighted by in the Discussion Paper are set out below.

Differences in Geographic Distribution of Traffic

57. We understand the Commission's concern that unfairness may arise where one operator has traffic with a very different geographic distribution from the other. Provided the conditions set out in the introduction to our paper apply (in particular broad regional provision of an access service), we do not believe this problem will be significant.
58. In a region where the new operator has gained coverage the bill-and-keep model will be appropriate. Termination of calls by Telecom in areas where the operator does not have coverage may be dealt with in 2 ways:
- by setting off calls in the region against termination of calls in other regions i.e. by setting off bill-and-keep traffic on a national basis so that an excess of calls in one region can be set off against a deficit of calls in another region
 - by the operator paying Telecom for those calls as is done currently.
59. Given new wireless technologies, coverage patterns will be different from historical coverage and take up. The urban/rural profile of a wireless network may be more skewed toward rural users - in urban areas DSL will be more available than in rural areas meaning greater take up of broadband wireless technologies in the regions.
60. In addition, the nature of wireless technology is such that it will not provide narrow coverage in the way that a copper wire or cable network might. For example, the technology Walker Wireless is employing provides coverage up to 29km from the base station and so, very quickly, a few base stations will necessarily provide coverage to a large number outlying areas. This will increase the skewing of our customer profiles toward rural areas.

Differences in the network level at which interconnection is provided

61. The levels of interconnect in place between operators can not always be readily compared. Telecom have an SS7 network while other, newer operators may employ other technologies such as IP. It is not possible to readily compare Telecom's tandem layer with any particular "layer" in, for example, an IP network.
62. Rather than Telecom being disadvantaged as when interconnection is compared at the network level, this may fall on new operators. Because of Telecom's legacy network a new operator with an IP network is likely to have undertake all conversion between SS7 and IP networks. This requires costly equipment and additional network management.
63. We believe that the make-up of the network providing the service should not be the key driver of determining provision of equivalent services and network costs. Where the service being provided is identical (e.g. termination of calls from a POI throughout a region) then the prices for those services should be the same.

Differences in the types of traffic

64. As we explained in the introduction to this paper we anticipate that the traffic

profile of an access provider with a national network will be very similar to that of Telecom. Where there may be differences (because of one network terminating more ISP and call centre traffic) these can be dealt with – as is the case currently with the provisions on callsinks.

Price Structures – Regions

65. It is our view that interconnect charging structures should be maintained as simply as possible. To introduce regional pricing differences would be difficult from two perspectives – setting the price (either through agreement or regulation) and to implementing the billing systems.
66. Again, the bill-and-keep regime is a simple way of providing for fair coverage across regions with different economics. Where interconnect is undertaken on a regional basis and both parties have broad coverage across the region then the reciprocal termination services they provide will ensure that neither is disadvantaged.

Other Pricing Structures

67. We have an overriding concern is that pricing structures should be simple. This, we believe, is best achieved by expanding the application of the bill-and-keep rules.
68. We support the Commission's proposal that its ruling on interconnect prices be based on the current pricing structures. As we have said throughout, however, we believe that the Commission should do more than merely alter the cents per call and cents per minute charges. We believe that the Commission would best achieve the purpose of the Act and its goals of efficiency as set out in the Discussion Paper by implementing the bill-and-keep regime as set out in this paper.
69. We believe that provided the operator seeking to interconnect with Telecom provides broad coverage across a region that there is no need to establish a complex pricing regime. For example:
 - differentiating by distance is not necessary where, in any region, both parties have similar coverage
 - time of day profiles will, we believe, be similar. As the busy hours of the two networks will largely coincide the investment decisions of both parties will be efficient.
70. We understand that there will be circumstances in which the networks and traffic profiles of the 2 operators will not "match" and so some payment will be necessary. If payments for this traffic are calculated on a wide range of factors it will be necessary to maintain complex billing systems for a small portion of total traffic. This is not a desirable or efficient outcome.

Charges paid by TCNZ

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71. Generally we support interconnect charges being symmetrical so that incentives are not put in place to exaggerate interconnection costs.
 72. As our network conveys traffic in an IP format, conversion is required to enable interconnection between our network and Telecom's SS7 network. Telecom has indicated that it is moving towards implementing an IP core to its network but does not yet have that capability. Therefore, it is possible Walker Wireless will carry the full burden on converting all interconnect traffic and the cost associated with that. If the interconnect regime is to be technology neutral it may be fair to share that burden (e.g. operators hand over calls in the protocol in which they originated) or for an operator with an IP network to charge more for handing over traffic in an SS7 format.

Duration of Determination.

73. One advantage of bill-and-keep is that payments, if required, will be for only a small portion of traffic. This will mean that price reviews will not have such a significant impact on the parties' finances, rather, any impact will be marginal
74. The result of this should be a bill-and-keep structure that applies unchanged and the occasional adjustment of marginal pricing which will not be as contentious as adjustment of prices for every call and every minute of traffic.
75. Bill-and-keep has the additional benefit of being easier to implement among carriers – providing consistency of interconnect charging.

TSO

76. In rolling out a network a new operator must incur considerable capital expenditure without immediate revenue returns. The effect of the TSO is add an additional layer of cost, again with no return. If operators are, in addition asked to provide service to its customers on the basis of the cost to Telecom of providing interconnect services, new operators will have little control over their cost base.
77. It is therefore imperative that any aspect of the interconnection regime that reflects Telecom's costs, does not provide for double recovery by Telecom of TSO losses.