TRANSPOWER NEW ZEALAND LIMITED

Submission to the Commerce Commission on the review of Asset Valuation Methodologies

November 2002

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Executive Summary

This submission is made in the context of the on-going process to establish a unified industry Rulebook under an Electricity Governance Board (the EGB). In preparing this submission Transpower has assumed that those rules will, under a form of governance yet to be established, come into force.

In particular, Transpower believes that, in order to achieve efficient outcomes, it is essential that the Commission should take an integrated and consistent view of its regulatory decisions relating to price control thresholds, valuation methodology, and the implementation of the Rulebook.

Evaluation Criteria

The evaluation criteria proposed by the Commission, namely efficiency, identification of excessive profits and cost effectiveness, are appropriate as they reflect the three objectives of the section 57E Purpose Statement.

Transpower considers that particular emphasis should be placed on achieving dynamic efficiency and that the objectives of the Purpose Statement can best be achieved with a valuation methodology that is simple in its application, and is able to be interpreted and implemented objectively and consistently.

Valuation and Regulatory Control

In considering the role of the asset valuation methodology in providing incentives for dynamically efficient investment, the Commission should recognise the role that existing contracting arrangements play in managing and allocating investment risk.

Furthermore, in the case of Transpower, the Commission should recognise the management and allocation of risk inherent in the design of the processes in Part F of the new industry Rulebook. The Part F processes are designed to provide an effective ex ante discipline on Transpower's capital expenditure by ensuring investments accord with the requirements of transmission customers and are evaluated in comparison with substitutes for transmission investment. In this environment ex post capital efficiency reviews should be avoided as they transfer technological and demand risk to investors, creating asymmetric risks for the investor and distorting efficient investment decision making.

Opening valuation of Transpower

Transpower proposes that the Commission adopt an historical cost valuation methodology with an opening asset value based on ODV.

It would be virtually impossible to construct an historical cost valuation (or a reasonable proxy), of Transpower's "opening" asset base as Transpower does not have adequate historical cost records prior to 1987 - when the majority of Transpower's assets were constructed. Tax book records do exist but these would have to be adjusted for capital and maintenance allocations, divergent asset lives and depreciation rates. Moreover, as a consequence of the lack of adequate records,

the costs of attempting to establish an historical cost valuation for the sunk assets would be prohibitive.

Using the ODV methodology provides a cost-effective means of obtaining a replacement cost valuation of Transpower's opening asset base. However, Transpower believes that it would be inappropriate to use either a recalibration of the June 2001 ODV valuation or Transpower's June 2002 ODV valuation (refer below) to establish Transpower's opening valuation. A number of material issues have been raised by Transpower and the Commission's auditors in respect of the fourth edition of the ODV Handbook that was applied for these two valuations. Moreover, given Transpower's proposal to move to a historical cost valuation methodology following an "opening" ODV valuation, this opening asset value, should be conducted in a manner that reflects its "one time only" nature.

On-Going Valuation methodology for Transpower

In principle both the historical cost and replacement valuation methodologies are capable of producing dynamically efficient outcomes and identifying excess profits in respect of new investment.

However, an historical cost approach is administratively simple and transparent. It involves less subjective assessments and guesswork to implement and offers additional synergies and cost savings as a result of aligning the regulatory valuation methodology with financial accounting standards (FRS-3).

Dynamic efficiency

An historical cost approach is fully consistent with the investment decision-making processes contained in Part F of the EGB Rulebook. It would promote dynamically efficient outcomes by ensuring that Transpower could invest with certainty, while the Part F processes would ensure that the level and cost of new transmission investments efficiently met customers needs. Adopting an historical cost valuation methodology (in conjunction with Part F) avoids the creation of asymmetric risks, allowing for investment to be undertaken in a timely way and in response to changing customer demand.

Importantly, these incentives for efficient outcomes would be lost if historical cost values were subject to ex post review – for example, through subsequent optimisation. Rather, as discussed in Transpower's submissions on the EGBL Application for authorisation of the Rulebook, the Part F process has been specifically designed to ensure that contracts are negotiated on fair and reasonable grounds, and are subject to competitive pressure.

To achieve the incentives necessary to produce similarly efficient outcomes with a replacement cost methodology requires the disincentives to investment created by asymmetric risks to be addressed, either through adjustment of the allowable rate of return, or through some alternative form of compensation.

Identifying Excess Profits

An historical cost valuation methodology, based on current accounting standards, provides relative objectivity, because the standards, developed by appropriately qualified professionals, are already in place. There is no requirement for the engineering judgement required under ODV to specify modern equivalent assets (MEAs), conduct economic value (EV) assessments or to optimise the system

configuration. In Transpower's case, where engineering judgement is required, it will be subject to the commercial discipline of contractual negotiations (with informed counterparties) and including, where necessary, the processes contained in Part F of the EGB Rulebook.

Finally, an historical cost valuation methodology has lower compliance and transaction costs. For example lines businesses will only need one set of systems to comply with both regulatory and financial reporting requirements.

Continued application of the ODV Methodology

To the extent that the Commission were to require electricity lines businesses (including Transpower) to continue to apply ODV there are a number of changes that would, in Transpower's view, need to be made to the current ODV methodology (based on the fourth edition of the ODV Handbook). These changes arise from issues identified by Transpower through its on-going application of the ODV methodology, and from issues raised during the recent recalibration audit. The proposed changes include:

- Updating of the modern equivalent replacement costs included in the ODV Handbook. This includes review of the building blocks to ensure that transmission line building blocks adequately reflect the nature of their component assets, and that the cost of all building blocks can reflect environmental and other regulatory restrictions.
- Ensuring that the value of assets still in operation at the end of their class life reflects their economic value. This could be achieved through either minimum life adjustments or through assessment of the condition of the assets.
- Review of provisions affecting the estimated remaining life of assets and clarification of the ODV Handbook's refurbishment provisions.
- Clarifying the treatment of network segments with negative economic value.
- Clarify the constraints on optimisation such that transmission lines cannot be rated above their physical capacity, or, allow the recovery of necessary expenditure on optimised out lines through the regulated profit or price thresholds.

System fixed assets

Transpower considers that the current definition of system fixed assets is adequate. However, assets invested in following contestable processes should be ring-fenced and excluded from the valuation of system fixed assets and from the operation of the regulatory regime generally.

In contrast to other system fixed assets, as land has an alternative use, it should be valued at "fair value". However, easements should be valued on the same basis as at present, namely easements that are registered against title, paid for and capitalised instead of expensed, are valued on an historical cost basis.

As the direct, capitalised cost of the easement reflects Transpower's financial interest in the easement there is little to be gained from adopting an alternative valuation approach.

1. Introduction

Operation of Part F of the unified industry rulebook

1. This submission is made in the context of the on-going process to establish a new unified industry Rulebook under an Electricity Governance Board (EGB). The industry is still to agree on the final form of the governance arrangements and the new EGB Rulebook. In preparing this submission Transpower has assumed that the rules that were the subject of the recent EGBL (Electricity Governance Board Limited) application will form the basis for the EGB Rulebook.

2. As with Transpower's submission on price control thresholds for electricity lines businesses, this submission is made in anticipation of Part F, in particular, of the EGB Rulebook becoming operational at some point in the future.

3. Part F is a critical part of the incentive structure and regulatory framework under which Transpower will operate in the future. In particular, in the context of the valuation methodology, the operation of Part F will provide disciplines on Transpower's capital investments that are material to the Commission's choice of a future valuation methodology. As Transpower has stressed to the Commission in its previous written and oral submissions, in order to achieve workable and efficient outcomes it is essential that the Commission takes an integrated view of its regulatory decisions encompassing: price control thresholds; valuation methodology and the authorisation of the EGB Rulebook (including Part F).

Submission structure and approach

4. This submission is structured to correspond with the Commission's Discussion Paper providing direct responses to the Commission's questions. Where relevant, pertinent additional points are located under the corresponding section headings of the Discussion Paper.

5. The submission is intended to inform the decision as to the best valuation methodology for Transpower and not, necessarily, the decision as to the best overall regulatory framework for all large electricity lines businesses. Questions posed in the Discussion Paper that particularly relate to the regulation of (large) distribution businesses are not therefore addressed.

2. Purpose of the Review

A.1 Should the same valuation methodology necessarily be used for thresholds assessments and for control?

6. It is clearly appropriate that the same valuation methodology is used for thresholds assessments and for control. Pursuant to section 57H of the Commerce Act 1986 (the Act), the Commission must assess the performance of the electricity lines business (ELB) against the thresholds for the declaration of control that are to be under the procedure prescribed in section 57G of the Act).

7. As the Commission has correctly identified at paragraph 2.6 of the Discussion Paper, asset valuation (and consequently the determination of an appropriate asset valuation methodology) is an integral component of three of the proposed thresholds (profit, efficiency and sharing). Consequently, a decision on whether to declare control under the Act follows from a decision on breach of a threshold (or thresholds). Asset valuation is, in turn, integral to the setting of those thresholds. There is no logical reason to use different valuation methodologies for the purposes of threshold assessment and for control. Indeed, thresholds assessment is a constituent part of the control regime.

A.2 What factors should be considered in deciding whether a consistent or different approach is desirable.

8. As is evident from our response to Question 1 above, it is not really a matter of considering 'factors'. Rather, the conclusion to Question 1 follows directly from the scheme of Subpart 1 of Part 4A of the Act. The thresholds are an integral component in determining whether to declare control, and asset valuations are an integral component of three of the proposed thresholds.

9. Using a different valuation methodology for making a decision on a declaration of control would, in affect, be to apply a different threshold from the threshold set by the Commission under the section 57G procedure, and this is not permitted by the Act.

A.3.1 What level of detail regarding asset values should be publicly disclosed?

10. Transpower believes that the level of detail in its current asset value disclosures is appropriate. While the level of detail disclosed in the Gazette is relatively modest, Transpower's annual optimised deprival value (ODV) reports, which comply with the current reporting requirements, provide a significant body of asset information, both in relation to the values assigned to assets at specific locations and to the methodology and assumptions that have been employed in deriving valuations.

A.3.2 How should asset valuation requirements be proscribed in practice (eg. a handbook)?

11. The proscribed valuation methodology and the information disclosure regime as a whole should be supported by documentation describing the requirements, standards and processes associated with that methodology. This approach has a number of benefits:

- It ensures that the methodology is applied objectively, consistently, and transparently;

- Valuers can have confidence that they have applied the methodology correctly;
- Investors can have certainty about how new investments will be incorporated in the regulated asset base; and
- Disclosures are more transparent because the method being applied is well known.

12. For the purposes of ODV valuation this would best be achieved through use of a handbook.

13. For the purpose of historical cost valuation this would best be achieved by reference to the relevant accounting standards.

A.4 To what extent should there be a different approach to asset valuations (than for thresholds and control) used for disclosure purposes?

14. Under the scheme of Part 4A of the Act, there is no practical or logical reason to employ a different asset valuation approach for the purposes of information disclosure and the purposes of setting thresholds and imposing control. It would make no sense to require ELBs to disclose asset valuation information against a methodology that is irrelevant to, and separate from, the control regime as a whole.

15. Indeed, the section 57T(1) information disclosure purpose statement closely mirrors the section 57E control purpose statement. The purpose of both Part 4A subparts is to "promote the efficient operation of markets directly related to electricity distribution and transmission services". Consequently, the scheme of the Act contemplates a valuation methodology directed at that statutory purpose for both price control and information disclosure. In addition, a requirement that ELBs disclose information under a different valuation methodology from that used for other regulatory purposes would impose unnecessary compliance costs on those businesses.

3. Evaluation Criteria

A.5 Are the proposed evaluation criteria of efficiency, excessive profits and cost effectiveness for assessing the valuation methodologies appropriate given the regulatory context in which asset valuations may be used?

16. The three evaluation criteria proposed for assessing the asset valuation methodology reflect the three objectives of the section 57E purpose statement of Subpart 1 of the Act. As is evident from the responses to Questions 1, 2 and 4 above, asset valuations are themselves just one component of the threshold and price control regimes. Consequently, it would not be appropriate to use a set of evaluation criteria that differed from those used under the wider control regime to select the relevant asset valuation methodology.

17. See, however, the responses to Questions 7 and 12 below, in relation to the limited relevance of allocative efficiency to the wider evaluation criterion in the context of asset valuation methodologies.

A.6 What other evaluation criteria, if any, should the Commission consider?

18. We refer the Commission to paragraphs 2.23 to 2.25 of Transpower's 15 June submission on the Commission's Issues Paper on The Review of Asset Valuation Methodologies[1].

19. There are several other important criteria that the Commission should consider in assessing the relative merits of alternative asset valuation methodologies, including the need to:

- Enable the network business to remain financially viable;
- Provide a degree of price stability over time by avoiding "price shocks" to customers. This is an important consideration both in respect of determining the network business's opening asset value and in undertaking any subsequent asset revaluations that can flow through to the prices charged to customers; and
- Provide appropriate incentives for the network business to invest to maintain service standards over time and to proactively meet customers' demands. The regulatory regime should, therefore, provide certainty about the way in which new investment will be treated to encourage and reward efficient new investment.

20. It is important to emphasise that the choice of asset valuation methodology is only one, albeit an important, factor that will affect the achievement of the objectives encapsulated in the criteria identified on page 23 of the Discussion Paper. The other elements that make up the regulatory regime will also have a significant bearing on the achievement of the regulatory objectives.

1.

[1] For ease of reference these paragraphs have been reproduced in Appendix 1.

A.7 In assessing asset valuation methodologies for system fixed assets, how important is allocative efficiency?

21. Allocative efficiency is a technical criterion for economic performance. It is concerned with the deployment of scarce resources to achieve the maximum possible net public benefit. As the Commission points out, "prices based on marginal costs would (theory suggests) maximise allocative efficiency"[2]. The marginal costs referred to here are marginal opportunity costs. They are assessed from a forward-looking perspective.

22. Asset valuation issues are largely about sunk costs, and not about forward-looking marginal opportunity costs. The choice of asset valuation methodology is therefore of limited relevance to regulatory intervention in support of allocative efficiency.

23. As discussed below, the Commission's choice of asset valuation methodology will have a far greater bearing on dynamic efficiency than allocative efficiency by affecting a network business's ability and incentive to invest and innovate and to allocate resources efficiently between activities over time.

A.8 How are the level, structure and profile of prices over time affected by the choice of valuation methodology?

24. The choice of asset valuation methodology is not important in determining the structure of prices but does affect the level and profile of prices in any given period. Price structures are determined quite independently of asset valuation considerations.

25. The expected net present value (NPV) of cash flows from a given asset should equal the original cost of that investment (i.e. satisfy the NPV rule) irrespective of the valuation methodology chosen.

26. However, the choice of asset valuation methodology will affect the value of assets that are used in providing regulated services. Alternative methodologies will:

- Result in different opening values for the asset base;
- Provide different opportunities for revaluations of assets over time; and
- Provide different incentives for the network business to make new investments over time.

27. The asset valuation methodology will therefore have a direct bearing on the level and profile of prices charged by network businesses over time because there is a direct link between prices and asset costs. The expected NPV of cashflows should, however, be the same.

1.

[2] Commerce Commission, Review of Asset Valuation Methodologies: Electricity Lines Businesses System Fixed Assets, Discussion Paper, 1 October 2002, page 24

28. The choice of asset valuation methodology will also affect the incentive the network business has to set the profile of prices in a way that maximises its revenue certainty. For example, methodologies that are based on replacement cost carry with them a risk that investors may not be able to recover the costs of their investment where future downward revaluations occur. Consequently, replacement cost methodologies provide an incentive for the network business to recover costs earlier rather than later. Historical cost approaches (without any optimisation and revaluation) remove that uncertainty.

29. The choice of approach for determining the return of capital and treatment of revaluations will also directly impact on the level and profile of average prices.

A.9 How does the choice of valuation methodology affect service quality and the ability for electricity lines businesses to provide services of a quality that reflects consumer demands?

30. As noted in the response to Question 8, the choice of valuation methodology affects investment incentives. For example, under the current ODV methodology investors have an incentive to delay or avoid new investments, because the ODV value of the assets created is lower than the cost of constructing the assets. This can lead to reductions in service quality and erosion of security margins. Under an historical cost approach there is no incentive to avoid or delay investment because investors have certainty that the full economic costs can be recovered.

31. To the extent that the asset valuation methodology recognises customer contracts and other service quality agreements (such as under Part F of the industry rulebook) service quality will reflect more directly customer requirements.

A.10 In assessing asset valuation methodologies for system fixed assets, how important is productive efficiency? What factors should be considered?

32. Productive efficiency is concerned with least cost service provision to customers. A regulator may promote productive efficiency by creating incentives for a network business to reveal and deliver least cost outcomes while meeting customer service requirements.

33. The role of the asset valuation methodology in creating productive efficiency incentives is limited by the fact that asset valuation primarily relates to sunk costs and, therefore, to past performance that the network business can no longer influence.

34. The choice of an asset valuation methodology can only influence a network business's future behaviour to the extent that penalising past performance provides incentives in relation to future performance. Methodologies that penalise by assigning low values to existing assets will serve as a disincentive to innovation and investment, which may have an adverse effect on productive efficiency.

35. Other measures available to the Commission, such as the mechanism adopted for benefit sharing between customers and regulated electricity lines businesses, are more effective than the choice of asset valuation methodology in promoting productive efficiency.

A.11 In assessing asset valuation methodologies for system fixed assets, how important is dynamic efficiency? What factors should be considered?

36. Dynamic efficiency concerns the promotion of innovation and new investment that allocates resources to their highest value use and increases productive use of those resources over time. In effect, dynamic efficiency creates incentives for the on-going achievement of allocative and productive efficiency.

37. In practice, a network business promotes dynamic efficiency by investing and innovating in a timely fashion so that:

- The costs of supplying its customers with a given service level continue to be minimised over time and the prices charged generally reflect this; and
- The business is able to improve the level of service provided to customers over time, without a disproportionate increase in price.

38. The choice of asset valuation methodology can directly impact on the incentives for a network business to pursue dynamic efficiency gains to the extent that it impacts on its incentives to invest efficiently as part of the broader regulatory regime. A business will respond to appropriate incentives and rewards for innovation and investment to the benefit of both itself and its customers. Equally, a business will refrain from such investment where it considers that unacceptable uncertainty or risk exists.

39. The choice of asset valuation methodology is important as it impacts on the incentives and rewards that influence a business to change its behaviour over time. This is relevant to valuing:

- The initial asset base – the approach to valuing sunk assets, including any prospect of retrospective revaluations, will affect the incentives for future investment; and
- New investments – each new investment needs to be justifiable as being in the commercial interests of the business.

A.12 How important is the identification of excess returns as a criterion for the assessment of valuation methodologies? What factors should be considered?

40. Transpower recognises the role that asset values have in identifying whether a lines business is earning excess returns. For example, the Commission could utilise building blocks based on asset values in:

- Setting any industry-wide price path that may serve as the maximum price that a network business can charge for its services;
- Identifying whether a business exceeds the thresholds;
- Deciding whether to declare the goods or services that the business provides; and
- Implementing control over the business's goods or services.

41. To ensure that the price control regime can perform these functions the chosen valuation methodology must be:

- Relatively objective;
- Simple in its application; and
- Be able to be implemented and interpreted consistently.

A.13 How important is cost effectiveness as a criterion for the choice of valuation methodology? What factors should be considered?

42. The cost effectiveness of alternative asset valuation approaches should be a secondary consideration to the other criteria identified on page 23 of the Discussion Paper, and in Transpower's response to Question 6 above. Cost effectiveness should only be considered if more than one alternative can meet the regulatory objectives.

43. In the unlikely event that cost effectiveness becomes the deciding factor between different methodologies, the following issues should be considered:

- The administrative simplicity of the alternative methodologies;
- The "switching costs" between the current and new methodologies; and
- The on-going costs of applying the alternative methodologies
- The transparency of the outcomes that would be achieved under the alternative methodologies.

44. With reference to the response to Question 12 above, it should be apparent that valuation methodologies that are objective, simple, and which can be consistently applied are also likely to be lower cost.

4. Valuation and Regulatory Control

A.14 How great is the scope for bilateral or multilateral contracting regarding asset investment?

45. In an open-access, interconnected network there is little scope for bilateral (or multi-lateral) contracts based on the dedicated provision of assets to one or more contracting parties and/or some form of capital contribution to the cost of the assets. In principle, such contractual arrangements might be put in place (perhaps after a contestable process) for providing assets to connect, for example, a remote, green-field processing plant to the transmission grid where the cost and economic benefit of the assets are solely borne by one or more transmission customers. Transpower is not presently party to any examples of this form of arrangement.

46. Transpower does, however, enter into analogous bilateral contracts with transmission customers that provide for the payment of charges over time that equate to the full (historical) costs of providing a particular asset or set of assets. This type of agreement is entered into where the economic benefits of an asset are primarily enjoyed by a single customer prepared to accept the risk of bypass or stranding of that asset (by contracting to pay in full for that asset(s)). The charges levied confer an expectation that the asset(s) will be kept in service for their economic life. However, contracts of this nature do not confer an ownership interest in the asset(s) to the customer and do not explicitly prevent the utilisation of the asset to provide services to other grid users.

A.15 How should contractual management of asset-related risks be dealt with in the context of regulatory asset valuation?

47. As noted in the Discussion Paper at paragraph 4.8, the risks faced by investors depend on the form of regulation and the extent of contractual risk management available.

48. The contractual allocation of risk must be recognised by the regulated asset valuation methodology. Changing the contractual allocation to the detriment of investors is likely to impact on the level of investment, unless investors are compensated for bearing that additional risk[3]. To achieve this the allowed rate of return on the assets would need to include a risk premium.

49. The ODV methodology implemented in New Zealand has in the past recognised this relationship. The ODV Handbook for Transpower (July 1994) noted at page 11:

> "Another factor to be taken into account in the technical appraisal is the existence of new investment agreements or other relevant contracts with customers. Therefore, in a technical appraisal and system optimisation, any over capacity or over specification adjustment must be made only where the assets exceed either prudent engineering/economic standards or those assets specified in new investment agreements or other contracts".

And at page 16:

1.

[3] See paragraphs 216 to 224 of Transpower's submission to the Commission on the proposed regulation of ELBs dated May 2002 for more detailed submissions on this point.

> "If an asset has been created at the request of a customer (which includes the customer's agreement to technical and commercial aspects prior to commencement) then the assets should not be optimised down. This also applies if a customer, for instance, has a connection contract for a particular capacity then this would lead to assets being retained at least to the capacity in the contract."

50. The role of contractual arrangements in allocating risks was also reflected in the third edition of the ODV Handbook (April 1999), which provided that optimisation should be carried out subject to the existence of new investment contracts or other relevant contracts[4]. Consequently, the ODV methodology first implemented in New Zealand clearly contemplated the risk of economic stranding of assets being shared between the investor and consumers.

51. Transpower's new investment policy recognises and implements risk sharing. Under the policy, Transpower invests in improvements to its grid assets where the customer that benefits from the investment enters into a contract to fund that investment. Transpower has three forms of contract of that nature:

- A new investment contract under which the customer funds Transpower's cost of funding the new investment in the grid assets;
- A grid assets improvement contract under which the customer pays an increased connection charge; and
- A contract for alteration to grid assets under which the customer pays an alteration charge.

52. Under the first two contracts, the risk of economic stranding of the investment is allocated to the customer, whereas under the third contract, the risk is allocated to Transpower through the inclusion of the assets in Transpower's ODV valuation (this is used where Transpower perceives the risk as modest).

53. The fourth edition of the ODV Handbook (October 2000) allocates the risk of economic stranding of the assets solely to the investor. For example, paragraph 3.33, which identifies the constraints to optimisation, no longer contains any reference to new investment or other relevant contracts as a constraint on optimisation. In determining the extent of optimisation, paragraphs 3.43 and 3.44 of the ODV Handbook note that regard must be had to the quality standards specified in contracts with customers, with the effect being that the risk of economic stranding of assets to meet those standards is solely allocated to the investor.

54. In the case of the depreciated historical cost (DHC) methodology, the issue is not the same. Under a DHC approach, Transpower's new investment contracts would continue, though their design might be slightly modified. Transpower would invest in assets at the time and of the kind required by the customer to meet its anticipated change in capacity requirements. These contracts would act as a constraint on premature expenditure and gold plating[5].

1.

[4] Paragraph 3.33(v).
[5] The contestability of these contracts is discussed in the response to Question 55 below.

55. Part F of the new EGB Rulebook will operate in conjunction with Transpower's new investment policies to prevent premature expenditure and gold plating. The EGB Rulebook will constitute a voluntary multilateral contract that will govern participation in the wholesale electricity market. This will apply to Transpower as grid owner and system operator. In essence, under Part F of the Rulebook, customers will collectively determine the obligations Transpower will be under as grid owner to have assets in place to meet their quality requirements.[6]

56. Consequently, Transpower submits:

    a. If the ODV methodology is used to determine the opening value of Transpower's assets, the ODV methodology should recognise Transpower's existing new investment contracts.

    b. If the ODV methodology is used to determine the valuation of subsequent investments, the ODV methodology should likewise recognise the subsequent new investment contracts agreed with customers.

    c. If DHC is used to determine the valuation of subsequent investments, there is no need for the methodology to expressly contemplate the role of contractual risk management techniques.

       The Commission should note, however, that under all circumstances Transpower's new investment contracts and the operation of Part F of the EGB Rulebook will act as a constraint on Transpower's capital expenditure.

A.16 Who is best placed to manage the various forms of investment risk faced by electricity lines businesses.

57. As a general principle, risks should be borne by the party most able to manage them.

58. While it might be possible to develop a theoretical model that allocates risks on the basis of whether they can be controlled by the regulated business, allocating particular risks, and associated rewards, is likely to prove problematic in practice. Any attempt to allocate risk needs to be considered in the light of the more fundamental objective of incentive regulation, which is to control prices or revenues while accessing management's abilities to drive improvements in the business's performance in pursuit of profits.

59. For example, while a regulated business might be able to exercise some control over consumer demand risk, passing that risk fully onto the business requires on-going asset revaluations in order to replicate the process that occurs in (theoretically) competitive markets. The costs of attempting to replicate this transfer of risk – the disincentives for future investment - need to be weighed against the additional benefits that might result.

60. By contrast, the regulatory process can ensure that construction cost risks are borne by regulated businesses, and this can assist in creating increased incentives for the business to manage those risks.

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[6] See paragraphs 19 to 30 of Transpower's submission to the Commerce Commission on the regulation of ELBs dated May 2002.

61. Ultimately, however, investor protection from asset redundancy risk can only be achieved by allowing accelerated depreciation on assets exposed to that risk, which effectively transfers the risk to electricity end-users.

A.17 In a regulated environment, how should investment risks be compensated? Is it preferable that some risks be compensated through WACC and others through the valuation methodology (e.g. through the choice of depreciation regime, or treating revaluation gains/losses as income)?

62. Theoretically investors should be indifferent to the approach used to deliver compensation for investment risk, provided the present value of cashflows under the different approaches is the same (the NPV rule).

63. However it is Transpower's view that most investment risks should be compensated through the rate of return allowed. This includes both "systematic" risks and "unique" risks specific to the circumstances of the business.

64. Under the Capital Asset Pricing Model, systematic risks are reflected in the WACC. The debate turns on how a regulated business should be compensated for "unique" risks. To provide appropriate risk adjusted revenues, it is important that there is consistency between the assumptions underpinning the setting of the rate of return and the definition of cash flows. There are two approaches to ensuring consistency:

- A theoretical rate of return with risk-adjusted or "expected value" cash flows; or
- A rate of return that adjusts for all unique risks and cash flows that reflect no risks at all.

65. The former approach – to compensate for investment risks via cash flows – is less preferred, as it has a number of flaws. First, it is impractical, requiring a level of detail and accuracy in cash flow estimation that cannot be achieved with information readily available to the business. It is also inconsistent with commercial practice.

66. Second, it misunderstands the very nature of risk. There are a number of risks to which regulated businesses are exposed that simply cannot be quantified with any precision. Transferring the risk to the market or explicitly self-insuring is therefore not feasible. The risk is simply borne, but unrecorded until such time as it manifests itself.

67. Third, the cashflow compensation approach is inconsistent with incentive regulation. Compensating investment risk via cash flows can damage incentives as it involves a highly prescriptive approach to the identification, allocation and treatment of unique risks. As such, it will inevitably entrench the regulatory process in an even greater focus on costs. It is also likely to create incentives for regulated businesses to (where possible) incur observable costs in relation to risks, merely to satisfy regulators that these risks impose costs in the first place.

68. In reality, what can be practically captured in cash flows is a matter of judgement.

69. Given the flaws in the cashflow compensation approach Transpower prefers that both systematic and unique risks be compensated through adjustments to the allowed rate of return.

70. Other issues relating to asset revaluations and the WACC are discussed in the response to question 42.

A.18 What are the relative merits of dealing with inflation through WACC or the valuation methodology?

71. The treatment of inflation in setting regulated prices raises two issues: the treatment of inflation between price control periods and the treatment of inflation within price control periods.

72. Typically, within price control periods, prices are indexed for actual inflation. Between price control periods, prices are normally re-set by either using a nominal WACC or indexing the asset base for inflation. Although there are some differences in these approaches,[7] these are likely to be relatively immaterial.

A.19 Is it appropriate that investors bear the risk of asset failure? In what circumstances would it not be appropriate for investors to bear the risk of asset failure?

73. In general terms, it is appropriate for the investors in a regulated business to bear the risk of asset failure if they are in the best position to manage the risk. Efforts to create a theoretically pure risk allocation model, in which risks are shared between the business and its customers, are unlikely to be successful, and may simply introduce incentives for perverse and strategic behaviour that is not consistent with the broader objectives of the regulatory regime[8].

74. However, there are some circumstances in which it is not appropriate for investors to bear the risk of asset failure. These included the catastrophic failures which may result from a force majeure event.

75. The allocation of asset failure risk to the regulated business needs to be balanced against the need for investors to be appropriately rewarded for the success of their investment decisions, and for the subsequent management of their assets by:

- Avoiding retrospective revaluations of assets; and
- Allowing the business to benefit from efficiency gains and to earn in excess of the average rate of return, provided these efficiency gains are progressively delivered to consumers.

A.20 How can accounting depreciation best be kept in line with economic depreciation?

76. Differences between accounting depreciation and economic depreciation reflect differences in assumptions used to approximate the real, underlying diminution of service potential. To accurately adjust for these differences over time would require annual asset by asset assessments of economic stranding risks. For assets not subject to economic stranding risk economic and accounting depreciation should, in theory, be the same. At a practical level differences will arise because, inevitably, assumptions have to be made.

1.

[7] For example, using a nominal WACC provides protection against expected inflation rather than actual inflation, and indexing the asset base for actual inflation implies that general inflation is a reliable indicator of changes in the value of the asset base.
[8] See the response to Question 17 (above).

77. Under Financial Reporting Standard 3 (FRS-3), the accounting standard relevant for valuation and depreciation of property, plant and equipment, useful lives used for determining depreciation rates must be assessed annually and, if necessary, adjusted to take into consideration technological or market changes. Thus, should evidence of economic stranding become apparent, annual reassessment of the useful life of the relevant asset should, in most instances, allow the investor to fully recover costs before the stranding occurred.

78. However, it would be difficult to align the depreciation charges if the cost base used for accounting purposes differs from that used to calculate economic depreciation.

79. In short, if the Commission adopts a valuation methodology that aligns with accounting standards there will be no need for additional processes to align accounting and economic depreciation.

A.21 How should assets be treated when they remain useful beyond their expected life?

80. In a similar manner to current accounting standards. Under FRS-3 the company is required to reassess the useful life of its assets annually and, if changes are made, the book value of the asset at the beginning of the year is depreciated over a shorter or longer period of time. Under FRS-3, assets would, therefore, never reach a book value of zero unless they are no longer being used.

A.22 How should uncertainty as to the useful economic life of an asset be accounted for in terms of regulated depreciation?

81. As noted in the responses to Questions 20 and 21 above, the issue of uncertainty over the economic life of assets are addressed more than adequately within the existing accounting standards. There is no need for the Commission to take a different approach. To do so would impose unnecessary complexity and cost on regulated lines businesses.

A.23 What effect would economic depreciation have on price profiles over time?

82. If technological change and demand changes are material, economic deprecation will tend to accelerate the depreciation profile for an individual asset. However, across a large pool of assets of mixed ages and subject to different rates of technological change economic depreciation would have little effect on price profiles over time.

A.24.1 Is capital efficiency best determined ex ante or ex post, or by a mixture of both? Are some factors pertaining to capital efficiency best considered ex post and others considered ex ante?

83. A capital efficiency review involves assessing the technical and economic merits of proposed capital expenditure to ensure that it is a prudent solution to a particular problem or need, and to ensure that the cost can be justified. All significant new investments should be subject to such a review process, with the regulator either overseeing the process or conducting the review.

84. Capital efficiency reviews are best determined on an ex ante, rather than on an ex post, basis. This is because ex post reviews create regulatory risks for investors by requiring them to take full responsibility for future technological and demand changes by creating the possibility of their assets being revalued. These risks will impact directly on:

- The preparedness of regulated businesses to invest in new assets; and
- Prices that are charged to customers: prices are likely to be higher if businesses seek to pass the cost of their higher investment risks on to their customers.

A.24.2 How are capital efficiency assessments best conducted?

85. Capital efficiency assessments are best conducted by requiring a regulated business to demonstrate that it has rigorous processes for assessing the need for capital expenditure, for identifying the most prudent means of meeting that need, and for effectively delivering the capital investment project. This should be undertaken before the investment is made.

86. The regulated business should be able to demonstrate to the regulator that its capital management plans clearly illustrate:

- The driver for the capital expenditure;
- The nature of the capital expenditure;
- The process that has been used to generate the capital program;
- The optimisation procedures that have been used to ensure the efficiency of the capital program; and
- The controls and procedures that are in place to ensure that the business is able to spend, control and report against capital projects in an efficient, timely and cost effective manner.

87. As Transpower argued in its submission to the Commission on price control thresholds,[9] the processes established under Part F of the new EGB Rulebook are designed to provide an effective discipline on Transpower's capital expenditure. Transpower has argued that compliance with the Part F processes should satisfy the Commission that the requirements for ensuring Transpower's capital efficiency have been met. The means by which the Part F processes provide an effective "discipline" on Transpower's capital expenditure is outlined at length in the response to question 18 of Transpower's price control submission[10].

A.25 What investment incentives do the various types of capital efficiency reviews create?

88. For reasons set out in response to Question 24, ex post capital efficiency reviews of any kind are not favoured as they transfer the technological and demand risks associated with capital investment to the investor, which will result in higher prices for consumers and reduce the investors incentive to invest in assets that provide regulated services.

1.

[9] "Submission to the Commerce Commission on the proposed regulation of Electricity Lines Businesses" Transpower New Zealand Ltd May 2002.
[10] Pages 35-37.

89. In contrast, ex ante reviews provide positive incentives for new investment by giving the investor certainty about the way in which efficient new investment will be treated for regulatory purposes and the nature of the prices that the investor is likely to be able to charge customers.

A.26 How frequently should capital efficiency reviews be conducted? What factors should be considered in deciding how frequently to conduct such reviews?

90. Transpower considers that the discipline provided by its new investment contracts and by Part F is sufficient to ensure capital efficiency.

A.27.1 Does the level of inflation/deflation in the electricity industry suggest one valuation methodology would be better than others?

91. The variation in the prices of electricity lines assets over time is usually different from the variation in the general level of prices in the economy as measured by an index such as the Consumer Price Index. To the extent there is a difference between the general and electricity industry-specific inflation rates, this will be picked up by a replacement cost valuation methodology (which also picks up the technology obsolescence risk), but not by an historical cost methodology.

92. This suggests that under conditions of high inflation a replacement cost methodology should be preferred, while under conditions of low inflation, an historical cost methodology would be sufficient.

93. However, the net present value of returns determined on the basis of a nominal WACC and a real asset value or of a real WACC and a nominal asset value, should be the same over the course of the regulatory period.

A.27.2 What are the pro's and cons of indexation?

94. Asset indexation (using the general inflation rate) does not account for any differential between the general inflation level and the industry specific level of inflation (if such a difference exists). This could produce a windfall gain or a windfall loss in value to investors if there is a bias to either greater or lower rates of inflation in the industry.

95. In addition, to the extent there is a difference between “expected” inflation and actual inflation, investors may be under- or over-compensated for their investment.

A.28 What relevance does FRS-3, or any other standards and policies have for the Commission's criteria for evaluating valuation methodologies?

96. FRS-3 is relevant to Commission’s review of valuation methodologies to the extent that it supports efficient outcomes, facilitates the identification of excessive profits and supports cost effective outcomes.

97. Transpower bases its revenue requirement on regulated (ODV) asset values. As a result, Transpower’s asset values are reflected as being fair value under FRS-3[11] that is, under Transpower’s current arrangements the regulated asset values are FRS-3 compliant.

1.

[11] Because FRS-3 uses cashflow as a proxy for value.

98. As FRS-3 is a regulatory requirement under the Financial Reporting Act 1993, the Commission should give serious regard to whether it is cost effective to operate an additional regulatory valuation methodology.

99. The need to satisfy the requirements of substantially different (and potentially conflicting) regulatory standards for price control and financial reporting is also likely to increase the complexity of investment decision making, hindering dynamic efficiency.

100. The Commission should seek to align the requirements of the valuation methodology with those of the financial reporting standards where possible.

A.29 What other accounting policies or practices, if any, are relevant to the review?

101. Infrastructure accounting needs to be considered as this impacts on the capital value of lines. Transpower has adopted the infrastructure accounting approach over recent years, which typically leads to expenditure, that would otherwise be capitalised under traditional depreciation regimes, being expensed. The introduction of FRS-3 means that Transpower will no longer be able to use infrastructure accounting. However, the transition process has raised a number of issues with respect to the application of FRS-3 to the ODV assets.

102. Guidance is required on the allocation of capital and maintenance costs as variances in these policies lead to differing asset values.

103. FRS-3 provides detail on those costs that can be capitalised as part of bringing an asset to working condition for its intended use, but there are areas where individual company judgements can vary. Examples of where differences can occur include the capitalisation of interest and overheads, where the issue concerns how much of these costs should be allocated to the asset for capitalisation.

104. FRS-3 also accepts a number of different approaches for the aggregation of assets. This can either be by asset type, or a functional block of assets consisting of different underlying assets. A different methodology for asset aggregation may lead to a differing capitalisation of maintenance costs. If assets are more broadly classified, then the cost of maintaining the assets is more likely to be classified as a maintenance expense, rather then replacing an asset on the asset register.

105. These policies are also relevant to the determination of useful lives and associated depreciation rates

A.30 What scope is there for substitution of capital and operating expenses for electricity lines business system fixed assets?

106. There is significant scope for substitution between maintenance and capital. This can occur as a result of changes in company policy concerning capitalisation of expenditure[12], or through changes in policy concerning the maintenance or replacement of existing assets.

1.

[12] This is because, at a practical level, the distinctions drawn between life extending and life achieving expenditure are often arbitrary. For example, if expenditure to replace 20% or more of the conductor on a line was to be capitalised and any lower amount was considered maintenance, there would be an incentive to programme replacement of conducter to suit the circumstances of the particular lines business.

107. Valuation methodology can have an effect on company incentives in relation to both of these types policies. For example, the removal of minimum life adjustments from the ODV process created an incentive for assets at the end of their life to be replaced regardless of their operating condition. This would result in substitution from maintenance expenditure into capital expenditure.

A.31 Should the regulatory asset valuation methodology include prescribed accounting policies, such as in relation to capitalisation and depreciation?

108. Not directly. The regulatory valuation methodology should instead be aligned with existing accounting standards which prescribe accounting policies in relation to capitalisation and depreciation.

109. This approach has a number of benefits:

- The Commission avoids the need to duplicate development processes which have already been undertaken by the accounting profession;
- Businesses avoid the administrative costs and complexities arising from the need to comply with two sets of (potentially conflicting) accounting policies;
- The resulting valuation methodology will be more consistently applied; and
- Because the accounting standards apply to all businesses, not just those in the electricity distribution and transmission sectors, there will be a greater degree of transparency.

5. Asset Valuation Methodologies

A.32.1 Are there some system fixed assets that could be put to alternative uses outside of the electricity system and, therefore, appropriately valued at opportunity cost?

110. Land is probably the clearest example of an asset that could be put to an alternative use. An example of this is the land under a substation located in a prime residential area.

111. Some types of communications assets could also have an alternative use.

A.32.2 What assets have high specificity (i.e. only have value in their current use)?

112. The majority of assets have high specificity. Many of the assets can be put to an alternative use, but only within the electricity transmission system, and to a more limited extent, within the electricity distribution system. The assets therefore only have value within those systems. If components of the transmission system are removed, the system integrity is compromised and Transpower is unable to fulfil its supply and security obligations.

A.33 What could explain the evidence of transactions of electricity lines businesses' system fixed assets greater than their ODV? How important are current and intangible assets in explaining the evidence?

113. Transpower has not participated in any significant transactions where assets have sold for substantially more than their ODV value.

A.34 What are the pros and cons of combining capital efficiency reviews with a historical cost approach? How great is the scope for capital efficiency reviews under a historical cost method?

114. As discussed above in response to Questions 24 and 25, ex post capital efficiency reviews are not supported because they create inappropriate regulatory risks for the investor. By creating the constant possibility of revaluation, they require the investor to take full responsibility for future technology and demand changes. Ex post capital efficiency reviews are therefore likely to result in the network business seeking to recover the additional cost of investment through higher prices (resulting from accelerated recovery of costs) and discourage, what otherwise may be, efficient new investment.

A.35 What events could be used as a base for valuing system fixed assets at historical cost? What are the relative merits of using the book values at each of these events as a base for a historical cost value? What would be the most appropriate date to use in assessing the historical cost of electricity lines?

115. The key events that should be considered in determining the historical cost of network assets are the date when the asset was originally constructed or replaced and, the date when the asset was involved in a transaction – that is, sale from one party to another.

116. It is useful to consider four different circumstances:

- First, if an asset existed before the introduction of a regulatory regime under which assets are valued at their historical costs (and the asset has

not been the subject of a transaction), then the original capital cost could be applied;

- Second, if an asset were built, later sold and a new regulatory regime under which assets were valued at historical cost was subsequently introduced, then the price at which the asset was sold could be used as the historical cost for regulatory purposes;
- Third, if a new regulatory regime under which assets were valued at historical cost were introduced, and a transaction involving existing assets were subsequently to occur, the original capital cost of the assets should be carried forward, rather than the purchase price under the transaction.
- Fourth, if a new regulatory regime under which assets were valued at historical cost were introduced, assets having been subject to a different regime, for example ODV, the closing ODV value could be carried forward as the book value, or opening historical cost value.

117. The underlying principle for each of these suggested treatments is the need for regulatory certainty.

A.36 What are the pros and cons of indexing historical cost values for inflation?

118. Refer to responses to Questions 18 and 27 above.

A.37 How important is it that an asset valuation methodology replicates or mimics competitive market outcomes, given the regulatory objections of Part 4A and the Commission's evaluation criteria?

119. The regulatory objective of the price control regime is set out in section 57E, and reflected in the Commission's evaluation criteria. Those statutory directions and evaluation criteria are explicitly directed at achieving "the efficient operation of markets directly related to electricity distribution and transmission services" for the long term benefit of consumers. Consequently, it is important that the asset valuation methodology, as an integral component of the control regime, mimics the long term competitive market outcomes. In this regard, the linkage between the asset valuation methodology chosen and dynamic efficiency is particularly important.

A.38 Does the ODRC approach have economic merit in terms of mimicking competition? Do any other asset valuation approaches have more merit in this regard?

120. The optimised depreciated replacement cost (ODRC) value of an asset is the depreciated cost of the asset if it were replaced with the least cost means of effecting the provision of future service.

121. The ODRC (or DORC) valuation method has been widely adopted by Australian electricity industry regulators, including by the Australian Competition and Consumer Commission (ACCC). The ACCC has identified two "interpretations" of ODRC:

- The asset value that would be consistent with the price charged by an efficient new entrant into an industry – a value consistent with the price that would prevail in the industry in long run equilibrium; and
- The price that a business would pay for the service delivery potential of existing assets in preference to replicating those assets.

122. The ACCC has argued that:

> …any value that is in excess of DORC is likely to imply pricing of services that will expose the service provider to being by-passed. While the significant entry and exit costs that characterise electricity transmission make large-scale duplication of the existing system unlikely, by-pass may be feasible at the edges of the network.[13]

123. These interpretations of ODRC are flawed as they:

- Ignore the structure of the electricity market and, in particular, the structure of the contracts that has evolved to deal with the risks of investing in highly specific assets. In the case of major infrastructure assets, the scale at which an efficient entrant may enter is likely to be considerably below the scale of operation of the existing service provider. Electricity assets exhibit significant economies of scale, so an efficient small scale entry will be at an asset cost per unit of service delivered substantially higher than the per unit asset cost of the incumbent;
- Ignore the complexity of investment decisions and the fact that the alternatives against which a decision is made to purchase existing assets will not even include an assessment of the replication of those assets; and
- Do not recognise that the net realisable value (NRV) of an asset sets the lower bound for a regulated asset as the rational economic asset owner would sell its assets if the net present value of its future regulated income stream fell below the NRV (i.e. if ODRC was less than NRV).

124. Transpower's experience is that location, market, customer and asset specific issues can mean that ODRC values diverge from economic or competitive market values.

A.39 If electricity lines businesses have revalued their assets in the past but have not matched those revaluations with income forgone, should their current return on capital be calculated using a real WACC?

125. Transpower has accounted, in its pricing methodology, for all revaluations as income. This question is not therefore applicable to Transpower.

126. The appropriate treatment of revaluations is considered in Transpower's response to Question 93 below.

A.40 If revaluation gains have not been treated as income, should consumers now be compensated in some way? If so, how?

127. Refer to the response to Question 39 (above).

A.41 Are there likely to be significant differences between the inflation of asset prices and the inflation implicit in a nominal WACC calculation?

128. Refer to the responses to Questions 18 and 27 above.

1.

[13] Australian Competition and Consumer Commission, Statement of Principles for the Regulation of Transmission Revenues, Draft, May 1999, page xi

A.42 If businesses bear the cost of downward revaluations is this risk asymmetric (i.e. to the disadvantage of investors) and how could it be reflected in the WACC without compromising incentives for efficient investment?

129. This depends on the nature and cause of the revaluation.

130. Optimisation creates an asymmetric risk, in that the value of the optimised assets can not be greater than the value of the assets prior to optimisation.

131. However, changes in replacement costs over time can be either upwards or downwards. Provided the treatment of these revaluations is consistent the risk is not asymmetric.

132. Any revaluation should be undertaken in light of the risks this creates for investors. Otherwise, an asymmetric risk premium would need to be added to the WACC to avoid compromising incentives for efficient investment. This premium would allow investor returns to exceed the WACC in the short run, but to be equal to the WACC in the long run (i.e. after allowing for losses due to asymmetric risks).

A.43 If businesses bear the cost of downward revaluations is this risk asymmetric (i.e. to the disadvantage of investors) and how could it be reflected in the WACC without compromising incentives for efficient investment?

133. Refer to the response to Question 42 above.

A.44 How important is an EV assessment to the theoretical underpinning of ODV?

134. Economic value (EV) assessment is fundamental to the theoretical underpinning of ODV, because what a business "forgoes if it were deprived of the asset" (the definition of ODV) is the net present value of its future revenue streams (its "economic value").

135. EV assessment provides information important for ensuring efficient new investment. If an asset should be replaced, its deprival value is its replacement cost. If the asset should not be replaced at the end of its economic life, its deprival value is the greater of its net present value of expected cashflows from continued use of the asset and the net value realisable from disposal of the asset.

A.45.1 Why does the EV component have a limited impact on ODV values (as per the ODV Handbook)?

136. The EV component of the ODV methodology has little impact on ODV values because the costs of the alternative supply options are, after allowance for asset optimisations, more expensive than the existing supply. Those alternative supply options that are economic have already been developed, and therefore their impact has either already been incorporated into the optimised system (ODRC) value, or the EV component of the ODV.

137. Transpower's pricing to customers is transparent and includes charges based on recovery of the optimised assets. Any uneconomic portion of the network has therefore already been identified and excluded from the asset base.

138. Finally, while EV assessments are conducted on segments, it should be recognised that economies of scale in network operation mean that being connected to the transmission system confers more, in service terms, than is available simply from the physical assets required to achieve connection, thus it usually costs considerably more to replicate those full service levels.

A.45.2 Are the factors identified by the Commission significant?

139. The factors identified by the Commission are not, from Transpower's perspective, significant. The most significant factors are the costs of available alternative supply options, which currently sit well above the Handbook's 6c/kWh maximum allowable profit maximising tariff.

A.46.1 What are the additional costs of an EV assessment (over and above an ODRC assessment)?

140. Transpower is required to perform an EV assessment on all points of supply which have been:

1. Subject to submissions regarding 'excessive costs' and possibility of by-pass;
2. Otherwise identified as 'high cost'; or
3. Identified as in a revenue constrained situation.

Transpower is also required to perform an EV assessment of the value of the high voltage DC (HVDC) link assets connecting Benmore in the South Island with Haywards in the North[14].

141. Costs for undertaking EV assessments can be classified into three categories:

- Costs for reviewing customer submissions relating to 'excessive costs' and possibility of bypass,
- Costs for undertaking the annual EV screen and EV spot analysis, and
- Costs for performing EV analysis on the HVDC link.

While there are some costs associated with EV analysis on revenue constrained assets, these are trivial as the revenue constrained cases are well known.

142. Costs for reviewing customer submissions relating to excessive costs vary according to the complexity and completeness of the customer submission. Such a review would normally take several person weeks. The outcome of these reviews are uncertain. Only a small number of cases have resulted in a write down of the ODRC asset value.

143. Costs for undertaking the annual EV screen and EV spot analysis are relatively modest as the models used have already been developed. Establishing prices for alternative energy sources involves two person weeks for modelling and analysis. Conducting location by location analysis took approximately 8 person weeks during the 30 June 2002 valuation round.

144. The EV analysis of the HVDC link includes complex energy system analysis, which is undertaken by Energy Link Ltd. Additional analysis undertaken by Transpower took approximately 4 person weeks during the 30 June 2002 valuation round.

1.

[14] ODV Handbook, paragraph 3.70, page 29.

145. In summary, EV assessment requires approximately half a year of staff time (full time equivalent) with a further $30,000 to $40,000 in data, consultant and review costs, or around $100,000 in total. These annual costs exclude the significant one-off costs incurred in developing models for conducting EV analysis.

A.46.2 Do the costs outweigh the benefits?

146. The principal benefits of the EV assessment requirements are that:

- They provide a clear and objective test of whether charges for transmission assets are higher than the economic value of those assets to customers. It thus provides a basis for efficient pricing, and for avoiding inefficient by-pass;
- For Transpower, they provide an opportunity for customers to have input into the optimised configurations upon which their charges are based; and
- Where economic value write-downs have occurred, customer charges will be lower.

147. Economic value write-downs (the difference between the ODRC and ODV valuations) reported in Transpower's revised 2001 ODV report were less than $1 million.

148. Transpower's estimate of the economic value of the HVDC link assets for the year ending June 2001 was $1,125 million. This is almost three times greater than the ODRC of $397 million. Sensitivity analysis suggests that only an extremely pessimistic set of assumptions could create a situation where the economic value of the link approached the ODRC value.

149. While Transpower accepts that Economic Value testing has a limited impact, it is nonetheless an important part of the conceptual underpinnings of the ODV valuation methodology[15] and should be retained if a replacement cost methodology is adopted for on-going asset valuation.

A.47 Are there significant numbers of "uneconomic" customers for electricity lines businesses? How should the costs of any uneconomic customers be allocated?

150. Transpower's customers are other electricity lines businesses, and directly connected major electricity users. The nature of this customer base means that Transpower has no "uneconomic" customers. Transpower has not undertaken any analysis on the profitability of other electricity lines businesses.

1.

[15] See the response to Question 38.

6. Current Use Of The ODV Methodology

A.48 If the prescribed ODV method were to be used as an input into the regulatory functions under Part 4A, what, if any, changes would be required to the fourth edition of the ODV Handbook? What effect would any necessary changes have on the values of system fixed assets?

6.1. Issues arising from the Recalibration Audit

151. As noted in the Discussion Paper, the Closing Report from the ODV recalibration process contained a number of suggestions for improvements to the ODV method and ODV Handbook, and the application of these by electricity lines business. These included:

- Improving the quality of some asset registers;
- The need for regular review of standard replacement costs specified in the ODV Handbook;
- A consistency review to ensure that standard replacement costs and asset lives are compatible between Transpower and other electricity lines businesses;
- Standardisation of costs for transformers, switchgear, and control buildings related to zone substations to improve consistency. (This does not affect Transpower directly);
- Residual asset lives of up to three years on fully depreciated assets still in service;
- Guidance on the treatment of assets maintained in perpetuity;
- Clarification of the refurbishment provisions in the ODV Handbook;
- Issues with aspects of the optimisation process;
- Reviewing the level of the profit maximising tariff;
- Reviewing the cost effectiveness of the EV assessment process; and
- Clarifying the treatment of negative EV segments.

Transpower's views on these issues are detailed below.

Quality of Asset Registers

152. Handbook requirements should be consistent with the requirements necessary to satisfy statutory auditors.

Regular Review of Standard Replacement Costs

153. This is a significant failing in the current ODV Handbook. The second edition of the ODV Handbook (May 1998) contained provision for asset values and lives to be updated "periodically to reflect changing costs and operational experience"[16]. This provision was omitted in later versions of the ODV Handbook, making it difficult to revise the costs without re-issuing the ODV Handbook in its entirety.

Building Block Consistency Review

154. The standard transmission building blocks published in the ODV Handbook are based on detailed design specifications, suitable for transmission investments and in accordance with international best practice.

155. If the specifications of these building blocks are accurate, and the costings represent current replacement costs, the building blocks would meet the objectives of the ODV methodology. Because of the consequences of failure transmission assets are generally built to a higher standard than similarly rated assets in distribution networks. There is little value to be gained by attempting to achieve consistency between specifications of transmission and distribution assets.

156. However, there would be value in ensuring that similar processes have been employed in specifying the building blocks, and that ensuring that the same cost categories have been captured during the derivation of the building blocks.

Three Year Residual Lives (Minimum Life Adjustments)

157. The third edition of the ODV Handbook (April 1999) contained provision for assets still in service at the end of their total life, that had not been refurbished, to be assigned a minimum remaining life of at least one year but not more than three years[17]. The fourth edition contains no such provision.

158. As the assets in question are still functioning they clearly have a positive economic value. To ascribe a zero value to useful assets creates an artificial incentive for these assets to be replaced before it is necessary. This goes against the efficiency criteria identified in the Discussion Paper and the statutory purposes of Part 4A.

159. Ideally the remaining life of an asset should be based on an assessment of its current condition and service potential. Transpower would support the reinstatement of minimum life adjustments, within the ODV methodology but would prefer this to be based on condition assessments, rather than having an artificial three-year limit.

160. The valuation impact of reinstating minimum life adjustments is likely to be small. In previous Transpower valuations these amounted to less than 1% of Transpower's ODV of system fixed assets. Assuming a nominal cost of capital, the revaluations arising from minimum life adjustments should be treated as income and attributed to the customer (see the response to Question 93 below).

Treatment of Assets Maintained in Perpetuity (Infrastructure Accounting)

1.

[16] Paragraph G.30.
[17] Paragraph B.40, page 38.

161. This issue is of particular relevance to Transpower. Transpower has operated under an infrastructure accounting regime for a significant period of time. The introduction of FRS-3 means that Transpower is moving away from that regime. The transition process is highlighting issues with the asset definitions for transmission lines, and the total lives assigned to those assets.

162. Transpower's view is that the remaining life of infrastructure assets, such as transmission lines, should be calculated by reference to the condition of the assets underlying components.

163. For example, transmission lines are comprised of structures, foundations, conductors and insulators. The life expectancy of conductors and insulators differs from that of structures and foundations.

164. An alternative to this approach would be to apply the refurbishment provisions of the ODV Handbook (paragraphs B.37 and B.38). This remedy is, however, currently ineffective because of the difficulty in establishing the impact of refurbishment activities over the life of lines that, in some cases, are over 70 years old.

Clarification of Refurbishment Provisions

165. In Transpower's view there are a number of problems with the refurbishment provisions in the ODV Handbook:

166. First, the definitions of "refurbishment", "maintenance" and "accumulated maintenance" appear inconsistent. If maintenance is defined as "work which is done to ensure that an asset is able to perform its designated function for its normal [total life]." then accumulated maintenance would not be life extending. However the ODV Handbook appears to contemplate that this might be the case. These definitions need to be clarified.

167. Second, the definition of refurbishment as work done on an asset "that results in a material extension of its service life beyond its normal [total life]." includes a materiality test, but does not contemplate what level of materiality might be appropriate.

168. Third, valuers are directed to assign a remaining life to the refurbished assets. There is no direction given as to how such an assessment might be made. Guidelines should be provided on what constitutes a reasonable approach to assigning a new remaining life.

169. Fourth, at one point in the recent ODV audit process Parsons Brinckerhoff attempted to define refurbishment by reference to the accounting treatment of disbursements. For the investor, the economic value of the assets is more likely to be driven by the condition of the assets following refurbishment, rather than by whether the disbursements were capitalised or expensed for accounting purposes. Basing the recognition of refurbishment activity on whether disbursements have been capitalised would lead to a divergence in value between identical assets solely on the basis of the accounting policies of the owners. A definition of refurbishment that has reference to accounting treatment is likely to distort the investment incentives of industry participants because the definition would impact directly on capital budgeting policies. While the Handbook is clear that refurbishment is based on life extension, and not accounting treatment, this point needs to be strengthened.

170. Finally, consideration needs to be given to the documentation required to support an adjustment to an asset's remaining life. Detailed information on refurbishment activity may be available for relatively recent periods. However transmission assets, particularly lines, have long lives and refurbishment records from earlier periods are not available.

Optimisation Process

171. Several issues are raised in the Discussion Paper regarding aspects of the optimisation process. These include the influence of the pre-optimised network on the optimised value of the assets, the appropriate basis for establishment of security of supply criteria and the possibility of lowering quality of supply criteria.

Influence of the Pre-Optimised Network

172. Optimisation is a complex and resource intensive process. The ODV Handbook identifies a number of constraints on the optimisation process. These are provided explicitly in paragraph 3.33:

- The optimised network must not exceed the existing level of supply security and no part of the network may exceed the ELBs disclosed quality of supply criteria unless non-standard contracts with customers exist that guarantee an enhanced quality of supply;
- The location of points of connection to other networks should be assumed to be fixed. However, where a point of connection can be by-passed and this allows a reduction in the replacement value of ELB assets, then the point of connection must be deleted for valuation purposes;
- The location and number of existing customers should be assumed fixed; and
- The existing boundaries of the ELB should be assumed fixed.

Paragraph 3.48 provides a further constraint: "In optimising the configuration of the high voltage distribution system, the routes of existing distribution lines should be considered to be fixed, provided they are still required to give supply to existing customers."

173. Of the five constraints identified above, four are location related. It is therefore no surprise that there is a strong relationship between the optimised and the pre-optimised networks.

174. Relaxing the location related constraints would lead to further optimisation. However the complexity of the optimisation problem would increase significantly, with a much larger number of alternative configurations to be considered. It also becomes more difficult to identify appropriate cost assumptions. The optimised network would be more subject to change, as the larger number of potential solutions would increase the degree of engineering judgement required to undertake optimisations. It also becomes more difficult to use the optimised system for other business purposes, such as long term system planning and pricing. For example, disparities between the actual assets in the physical system and "notional" assets in the optimised system would mean that the optimised system was less achievable. There would be greater scope for customers to debate prices by proposing configurations that altered the allocation of charges, without necessarily altering the asset valuation.

175. In summary, having well defined and easy to implement constraints simplifies the optimisation process, and leads to more objective outcomes.

The Appropriate Basis for Quality of Supply Criteria

176. The Discussion Paper suggests that the electricity lines businesses are basing their quality of supply criteria on the performance of their existing networks, and implies that rational economic analysis, international standards and customer expectations might be more appropriate reference points for setting quality of supply criteria.

177. The general principles to be applied in establishing quality of supply criteria are given in paragraph 3.38 of the ODV Handbook. "The optimised network must be designed to supply the existing load, and allowed load growth, with a quality of supply criteria that matches the level that currently exists, except where this is greater than the disclosed quality of supply criteria." If this principle was being applied consistently, and accurately it is likely that supply criteria would appear to be based on the performance of existing networks.

178. Transpower notes that the ODV Handbook already requires electricity line businesses to set quality criteria with reference to customer requirements, network maintenance requirements and costs.

Lowering Quality of Supply Criteria

179. Lowering quality of supply criteria to achieve an increase in the level of optimisation suggests that the objective of optimisation is to generate the lowest valuation possible, rather than to measure "the cost of replicating the system, using Modern Equivalent Asset values, in the most efficient way possible from and engineering perspective, given its service capability…"[18].

180. The focus of any review of quality of supply criteria should be to ensure that appropriate quality of supply criteria have been established given technical, economic and customer requirements.

Profit Maximising Tariffs

181. The maximum long run sustainable tariff for a given grid exit point is a tariff which represents the cost of an appropriately configured alternative to electricity transportation via the grid. Above this price level customers would prefer to implement the alternative.

1.

[18] ODV Handbook, paragraph 2.6, page 14.

182. The profit maximising tariff for transmission should be set by reference to the maximum long run sustainable tariff, with costs of energy and distribution deducted.

183. While Transpower has in the past made economic value adjustments to assets at high cost nodes, on no occasion has the cost of electricity transported over the grid been more expensive than the alternative (i.e. the 6c per kWh profit maximising tariff is rarely binding) and is never higher than the cost of alternative energy sources.

184. Transpower thus sees no justification for a further reduction in the profit maximising tariff for transmission.

Cost Effectiveness of EV Assessments

185. Transpower believes that while EV assessments are costly, they are a necessary part of the overall ODV methodology. The reasons for this are discussed in Transpower's response to Questions 38, 46 and 47.

Negative EV Segments

186. In a competitive market investors would respond to a situation where assets had a negative economic value by minimising their losses and disposing of the assets. This suggests that assets with a negative economic value should be valued at net realisable value.

6.2. Other Issues

187. In Transpower's view, the impact on dynamic efficiency is the most important consideration in selecting a valuation methodology. If the ODV methodology were to be used as an input into the regulatory functions under Part 4A, changes to the existing ODV Handbook would be required to ensure that the methodology promoted efficient investment.

188. If revenues are set on the basis of generating an economic return from an ODV asset base, loss of shareholder value will occur if the increase in ODV is less than the capital cost of the investment. This is because the present value of expected cashflows would be lower than the expenditure incurred.

189. The ODV methodology removes historical overbuild in one of two ways:

(a) By using modern equivalent assets to provide the same service through lower cost modern technology, and

(b) By optimising assets to remove excess capacity. In practice, when these aspects of the ODV methodology are applied to new investment, value loss can occur creating a disincentive to invest even for dynamically efficient investments.

190. A variety of circumstances can give rise to value loss, including:

- differences between project cost and modern equivalent asset (MEA) replacement cost;
- operating and refurbishment expenditure on assets that are (currently) optimised down or optimised out;
- expenditure affecting assets which are a small proportion of the ODV building block; and

- the impact of depreciation on capacity enhancing expenditure.

These circumstances are elaborated on below

Project cost versus MEA Replacement Cost

191. If the expenditure incurred for an upgrade is higher than the replacement cost of its modern equivalent there will be a loss of value when assets are commissioned. This can arise for several reasons:

- MEA replacement costs reflect standardised construction costs for greenfield sites and for "full-scale" construction. For example, the transmission line building blocks in the ODV Handbook are based on construction of 100km of line. Upgrades generally involve proportionality higher design, management, and construction costs because the works typically involve shorter lengths of line (than 100km) and because of the need to take into account work around existing assets.
- Every transmission investment is unique and will differ from the specifications inherent in the standardised MEA replacement costs, which are theoretical averages. While multipliers are applied to replacement costs to reflect some location specific factors, Transpower's experience is that these are not generally sufficient to account for project specific variations.
- At some locations resource consent processes impose restrictions as to the type of assets that can be installed, or require investment, over and above that recognised in the ODV building blocks – for example proscribed use of low noise transformers, which have a higher cost than the MEA.
- The modern equivalent building blocks for transmission assets were developed in late 1997 and early 1998. Costs for many of these assets have increased significantly over the ensuing five years. One reason for this is the falling value of the New Zealand dollar.[19] While this may not be a permanent movement in current costs the write-off of capital that occurs on investments is no less real.

Expenditure on Optimised Assets

192. Assets that have been optimised down or out may, nonetheless, be upgraded because the incremental cost of the upgrade is lower than the cost of scrapping the assets and replacing them with the optimised configuration. In effect, it is cheaper to utilise the existing assets and benefit from the sunk cost than to build the "optimal" configuration of the assets. In this context the upgrade represents the efficient outcome, but the capital costs of the upgrade cannot be fully recovered because the assets are optimised down or out.

1.

[19] The 1998 MEA replacement costs are based on a New Zealand to Australian dollar exchange rate of 0.8818 – a level not attained by the New Zealand dollar since January 1998.

193. Optimised transmission lines may also need to be maintained for health and safety reasons, or for long-term planning reasons extending beyond the normal ODV time horizon. For example, portions of the optimised out Mangahao – Paekakariki lines have been reconductored for safety reasons where they run through urban areas. Longer term (outside the current 10-year planning horizon) the line will be needed to support load growth on the Kapiti Coast. Recent Transpower estimates suggest that the cost of providing for that growth without the existing optimised assets would be in excess of $27 million, significantly higher than the cost of maintaining the current assets until they are required.

Expenditure on Building Block Components

194. Transmission lines are generally maintained as "perpetual" assets. Components of the line are continuously refurbished and upgraded to extend their life. The capital costs of this work may not be material when compared to the ODV replacement cost. For example a transmission line asset comprises towers or other support structures, conductors, insulators and foundations captured in the ODV Handbook as a single building block. Replacement or upgrade of a portion of an asset, while meeting the definition of capital for accounting purposes, may not be significant enough for the expenditure to be treated as a capital addition, or refurbishment[20] for ODV purposes.[21]

Impact of Depreciation

195. Some transmission line investments enhance the capacity of the existing conductor in order to delay more significant capital investment. In some circumstances it is possible to increase the tension on a transmission line, allowing an increase in the thermal rating, and hence the capacity of that line. Under current ODV rules the MEA replacement cost of the line can be increased, but the remaining life of the line is unaffected. As a result the value impact of the change in capacity is proportional to the degree of depreciation.

196. To illustrate how this happens, consider a numerical example.[22] A 110kV-transmission line operating at 60^{o}C might have an MEA replacement cost of $167,000 per km. The cost of re-tensioning the line, to increase the thermal rating to 90^{o}C, is in the order of $20,000 per km. This would increase the MEA replacement cost of the line to $173,000 per km a value increase of only $6,000 per km - already a value loss of 70%. However, the value loss is accentuated by depreciation. If the line has a remaining life of 11 years,[23] the value increment from the work will be only $1,200 per km (i.e. one fifth of the MEA increase) producing an overall value loss of 94%.

Possible Solutions

197. In combination, the sources of value loss described above represent a significant disincentive to efficient investment decision making.

1.

[20] Clause B.37 of the ODV Handbook defines refurbishment as "work done on the asset (or set of assets) that results in a material extension of its service life beyond its normal TL" but does not specify what that level of materiality is.
[21] Amounts capitalised for accounting purposes are not recovered through revenue unless they add to the ODV asset base.
[22] This example is based upon a proposed line upgrade in the Bay of Plenty.
[23] Compared with a total life of 55 years.

198. The removal of this disincentive can be achieved for new investment in a number of ways. The most obvious solution in many cases is to include new investments in the asset base at historical cost. Alternatively, there are changes that can be made to the ODV Handbook that would reduce the scope for value loss at the time of investment. Finally, there may be ways of preserving the incentives that are outside of the valuation approach – such as pricing based on a higher targeted return on investment that "adjusts" for the expected value loss on a proportion of the asset base

Historical Cost

199. Valuing new investments at historical cost provides certainty for both Transpower and its customers. It is easy to implement, and helps to preserve investment signals for customers because the full economic cost of the investment is recovered. This is the only approach that can consistently address the impact of depreciation on capacity enhancing expenditure. However, if the historical cost approach is to be used there must be processes in place to ensure new investment is efficient, whether those processes are provided through regulatory, industry governance or contractual means.

Alterations to the Handbook

200. A number of the issues described above can be addressed through quite specific changes to the ODV Handbook. For example:

a) Differences in project costs and replacement costs that arise because of environmental or other regulatory restrictions can be addressed by explicitly identifying sustainability and environmental requirements in Clause 3.12 of the Handbook. This would allow MEA replacement costs to be developed for situations where there are restrictions on the assets that can be put in place.

b) Differences in project costs and replacement costs arising because of changes in equipment prices (due to exchange rates, inflation or other factors) could be addressed through the regular review of building block costs to ensure alignment between project costs and "efficient" current costs.

c) The materiality issues arising for expenditure on components of transmission lines can be addressed by redefining the building blocks into smaller components (for example structures, foundations, conductor and insulators). This approach has several advantages:
   - It aligns the building block definitions with processes that generate the expenditure (such as replacement of foundations);
   - It ensures that the different economic lives of these components can be recognised; and
   - It simplifies management of transmission line asset data because the asset definition would be more in line with the requirements of new financial reporting standards (FRS-3).

d) Alternatively, the materiality issue could be addressed by extending and clarifying the refurbishment provisions in B.37 and B.38 of the Handbook so that it explicitly captured the full cost of line upgrades.

201. Optimisation issues are more difficult to resolve. The optimisation process is very complex, and changes to the rules can have unintended results.

202. One possibility for addressing the optimisation issues would be to further limit the types of reconfiguration that can occur during optimisation. Currently the ratings of individual assets in the optimised network may be increased above the level of existing assets, provided the overall network performance is not improved as a result of the optimisation. In addition the re-configured assets must not have excess capacity and must still satisfy the quality and security of supply criteria.

203. An example is in the central North Island, where the existing network arrangement consists of three 220kV lines each with a single circuit configuration. In the optimised arrangement the three lines are removed and replaced by one 220kV double circuit line. The overall network capacity has been reduced in the optimised configuration, but each of the optimised circuits has a higher capacity than the circuits in the physical system.

204. If the optimised capacity of a line were limited to its current physical capacity many of these optimisation issues would not arise, as few transmission lines would be optimised out. If this approach were applied in the example above, the 220kV lines would be optimised down to one double circuit line, and one single circuit line.

Adjusting for expected losses

205. Another option for dealing with necessary expenditure on optimised lines is to accept that the write-offs will occur, but allow full recovery of these through the regulated profit or price threshold. This is a simpler solution than changing the optimisation rules, and avoids the prospect of significant step changes in lines company valuations.

7. Industry Specific Issues

A.49 Are the standard costs currently listed in the ODV Handbook appropriate?

206. Transpower developed transmission building blocks for ODV valuation purposes during 1997 and 1998, using detailed design specifications and externally verified costs.

207. Meritec and Becca Carter Hollings and Ferner have undertaken reviews of transmission line and substation building block costs during 2001/2002. These reviews identified significant changes in replacement cost for many of the standard building blocks contained in the ODV Handbook. Costs for a number of the ODV building blocks had increased significantly, while costs for a small number of building blocks had decreased. Examples of the changes in building block costs are given below.

- The most common transmission line building block in the optimised transmission system is building block 54 (a 220kV double circuit steel tower line with single zebra conductor (980 amp, 75 deg C thermal rating). There are approximately 1,718 km of this line in the optimised system. The ODV Handbook maximum value for this building block is $212,970 per km[24]. Analysis undertaken as part of Transpower's 2002 ODV valuation found that this building block would now cost $237,470 per km to construct, an increase of approximately 12% over 4 years.
- The next most common transmission line building block is 61a (a 220kV single circuit steel tower line with single goat conductor (640 amp, 50 deg C thermal rating)), of which there is 1118km of line in the optimised transmission system. The ODV Handbook maximum value for this building block is $132,340 per km. Transpower's analysis found that this building block would now cost $166,330 per km to construct, an increase of approximately 25% over 4 years.
- A similar pattern has been observed with transformers. The most common transform in the optimised transmission system is building block 96 (a 110/11kV 20 MVA D-S transformer with on line tap changer). The ODV Handbook maximum value for this transformer is $836,520 to construct and commission[25]. Analysis undertaken in 2001 found that this transformer would now cost $919,580, an increase of approximately 10%.

208. There are some instances where the building block value is higher than current replacement cost. One of the more common switchgear building blocks is an H11 (a 33kV outdoor feeder circuit breaker module) of which there were 233 used in Transpower's June 2001 ODV valuation. The building block value given in the ODV Handbook is $245,400 to construct and commission[26]. Analysis undertaken in 2001 found that this module would now cost $233,500 a decrease of approximately 5%.

1.

[24] These amounts are exclusive of adjustments for terrain and interest during construction.
[25] These amounts include transformer infrastructure, but exclude seismic factors and interest during construction.
[26] These amounts include breakers, buswork, infrastructure and protection, but exclude seismic factors and interest during construction.

209. Transpower has subsequently analysed detailed costings for a number of the ODV building block types to identify the cause of replacement cost movements. In summary, the findings were:

- One of the principal reasons for increases in building block costs was the falling value of the New Zealand dollar. While this may not be a permanent movement in current costs, the write-off of capital that occurs on these investments is no less real.
- Reductions in the replacement cost of switchgear are related to improvements in technology.
- The principal reason for decreases in other building block costs were changes made by Meritec to the original design specifications.

A.50 How significant is the rate of technological progress and the potential for shifts in demand for the valuation of electricity lines businesses system fixed assets?

Technical Progress

210. Rates of technological change vary across the different types of equipment used in the transmission system.

211. For transmission lines and transformers, the rate of technological change has been relatively low. The rate of progress has been faster for switchgear. This may be related to the fact that switchgear is of lower cost and has a shorter life, so the risks associated with innovation are reduced.

212. Transmission lines and transformers make up the bulk of Transpower's AC system assets in value terms. The impact of technological change on overall value is thus likely to be quite small.

Shifts in Demand

213. There is potential for changes in demand to impact on asset values. The results are, however, difficult to predict.

214. In Transpower's experience, valuation impacts from shifts in demand normally arise because of location specific factors. For example, a decision concerning the location of a new dairy factory (increasing demand) might lead to a reduction in the value of Transpower's assets where it results in the economic by-pass of Transpower's assets.

A.51 Is there evidence that the replacement costs of system fixed assets will rise or fall (and how fast) relative to the rate of CPI inflation?

215. Transpower has no evidence that points to a relationship between asset replacement costs and the rate of CPI inflation. From the analysis referred to in the response to Question 50 above, the strongest driver of Transpower's replacement costs appears to be the exchange rate.

A.52 Is there evidence that rates of technological change are sufficiently high to warrant full depreciation over a period significantly shorter than the relevant asset's technical life?

216. The highest rates of technological change occur with electronic equipment, such as SCADA, metering equipment, and protection relays.

217. Technological change is much slower with assets such as transformers and switchgear, and the nature of the technological change relates more to efficiencies in design (lower cost of manufacturing) than to changes in technical operation (additional functionality). In addition, for very large assets (transformers and transmission line structures) improvements in design tend to be outweighed by the raw material costs associated with the equipment.

A.54 Under what circumstances should capital contributions be excluded from the regulatory asset base? Where this is desirable, how should they be excluded?

218. The answer to this question depends on the valuation method used to establish the regulated asset base.

219. Under the ODV methodology capital contributions are ignored "as it is the deprival value of the assets that is required, not the actual investment".[27] However, the revaluation required to align project costs and ODV value should be treated as income to ensure that over-recovery does not occur.

220. Under an historical cost methodology the contributions would presumably create some form of joint-venture in respect of the asset in question. In that case, parties to the joint venture should be treated as under the regulatory provisions. The asset value could be apportioned to the parties according to their contributions, or if this is too complicated, the asset should be valued in full and included in only one set of books.

A.55.1 Should assets associated with contestable services be ring-fenced from other system fixed assets?

221. The Commerce Act permits system fixed assets associated with contestable services to be ring fenced from other system fixed assets. Section 57Y defines system fixed assets by reference to the meaning given in the Electricity (Information Disclosure) Regulations. Hence, ring fencing might be contemplated by the information disclosure regulations, or by the asset valuation methodology itself.

222. Transpower accepts that its system fixed assets constitute a natural monopoly service and that therefore, in the context of Part 4A, the methodology for their valuation should be regulated. However, in the future there may be investments that Transpower undertakes for the purpose of providing transmission services in the transmission market that are contestable. An example would be a bi-lateral agreement for the provision of transmission services – such as the connection of remote resource processing plant to the national grid requiring creation of a new point of connection – where there are clear substitutes for the transmission assets. In this case, the provision of the necessary assets may be open to a competitive tender, with competition from, for example, a local generation station offering a directly connected power supply contract.

1.

[27] ODV Handbook, paragraph 3.15, page 19.

223. Assets rising out of contestable processes should be ring fenced and excluded from the valuation of system fixed assets to the extent that this is feasible (because of use of common assets); and from the operation of the regulatory regime generally.[28]

A.55.2 What evidence can be provided to demonstrate that specific agreements with one or more customers were negotiated on fair and reasonable terms and/or subject to competitive pressure?

224. It should be incumbent on ELBs to demonstrate to the Commission that its services are contestable and that assets involved in providing those services should therefore be ring fenced. The test should be generic in its nature, to provide flexibility as to the evidence ELBs can provide to demonstrate contestability. If the ELB can demonstrate a contestable process to the Commission (or the auditors), then that will itself demonstrate that the specific agreements with one or more customers arose from a competitive process on an arms length basis, which can therefore be assumed to be on fair and reasonable terms.

225. In assessing the contestability of Transpower's new investments, we submit that the Commission should have regard to the following factors:

- The extent to which the distribution businesses have alternative technical solutions available to them;
- The fact that distribution businesses have an expert knowledge and understanding of the electricity industry and therefore are able to negotiate on an equitable basis with Transpower;
- The protection provided under the Commerce Act and fair trading legislation for the distributors against Transpower misusing market power.

226. As discussed in Transpower's submission on the EGB Rulebook, the Part F process has been specifically designed to ensure that contracts are negotiated on fair and reasonable grounds, and are subject to competitive pressure.

A.56 Should the value of some assets be determined by the associated contractual revenue streams (rather than by reference to historical cost or replacement cost)?

227. For natural monopoly services, asset values should not be determined by revenue streams, but should be equivalent to their NPV (i.e. the NPV rule should hold).

228. The Commission's point at paragraph 5.10 of the Discussion Paper is accepted. A discounted cash flow (DCF) valuation of revenue streams is forward looking and does not consider the optimality of past investment or the cost of them. In addition, in the case of assets providing a monopoly service, the revenue streams contracted by the monopoly service provider are relatively unrestrained.

A.57 What assets should be included as "system fixed assets"?

1.

[28] In this regard, see paragraphs 231 to 237 of Transpower's May 2002 submission to the Commerce Commission on the proposed regulation of ELBs.

229. Transpower considers that the definition of system fixed assets given in the Electricity (Information Disclosure) Regulations is sufficient.

A.58 How should an asset be valued for regulatory purposes where it also provides line services that are not subject to regulatory oversight by the Commission?

230. It is difficult to comprehend a situation in which transmission assets would provide both regulated and unregulated line services.

231. There may, however, be some circumstances where non-transmission assets may be used for both regulated and unregulated activities. For example fibre optic cable is used to provide communications necessary for operating the transmission system. There is generally excess capacity in the cables because they contain a bundle of fibres, rather than the one or two needed for managing the transmission system. This excess capacity may be leased to telecommunications companies.

232. If a network business can earn additional unregulated revenues (i.e. over and above the revenues allowed for by its regulated services), then it should be free to do so, provided that cross subsidies are avoided. This simply reflects the fact the Commission should be interested in regulating "services" rather than regulating "assets".

233. The purpose of access regulation of electricity lines businesses, is to ensure that businesses "are limited in their ability to extract excessive profits"[29] by providing for the regulation of prices so that they are similar to the prices that would prevail in competitive markets. In these circumstances, the regulatory asset valuation should be consistent with competitive market pricing. To the extent that assets used to provide unregulated services need to be valued, there should be no difference in the approach to valuing assets that provide only regulated services, and those which may provide additional unregulated services.

A.59 Should asset valuations be disclosed in respect of distinct network regions?

234. This depends on the form of the disclosures being required.

235. Transpower currently discloses asset valuations for individual transmission lines and substations, and in that sense, a valuation report that provided information at a more regional level would result in a loss of transparency, compared to the current regime.

236. If instead the Commission is suggesting that separate valuation reports should be issued for each region in which a network business operates, this is likely to be of limited benefit as businesses would still be publishing separate disclosures. In addition, this approach would impose a significant administrative cost on Transpower, because of the number of regions in which it operates.

A.60.1 What is the best way to value land and easements? Should easements be valued differently from other system fixed assets?

237. On the basis that the land associated with substations and switchyards are regarded as system fixed assets, land should be valued at "fair value".

1.

[29] As per the Part 4A Subpart 1 Purpose statement found in s57E of the Commerce Act 1986.

238. Fair Value is defined as being the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.

239. This requirement and definition is consistent with FRS-3 issued by the Institute of Chartered Accountants of New Zealand. The term fair value is also commonly described as "market value", "open market value", and "current market value".

240. This valuation basis is further supported by the New Zealand Property Institute (NZPI) Valuation Standards, in particular Valuation Standard 3 "Valuations for Financial Statements", and also by the New Zealand National Asset Management Steering Group ('NAMS")[30]. The standards and guidelines issued by the NZPI and NAMS, respectively, have been revised to ensure consistency with the requirements of FRS-3.

241. Easements are associated with the transmission lines and the rights conferred by existing statutory rights and acquired easements. An easement has been defined in "McVeagh's Land Valuation Law" as:[31]

> "a right to use another's land in a particular manner without being entitled to the possession of the land or to take part of its soil or produce, or a right to prevent the owner of any land from utilising his or her land in a particular manner."

242. Easements are associated with the transmission lines and the rights conferred by existing statutory rights and acquired easements.

243. Transpower has both "statutory easements" and "acquired easements". Statutory easements are effectively statutory provisions contained in the Electricity Act 1992, which provide for the creation of rights over private land for the purposes of inspecting, maintaining or operating the transmission lines. Acquired easements have been created by express grant by a contract and subsequent filing of a memorandum of transfer in the Land Transfer Office for registration against the title(s) to the land.

244. Most transmission lines owned and operated by Transpower were constructed under the terms and provisions of the Electricity Act 1968. The 1968 Act gave the Crown extensive rights of entry to land for the purpose of gaining access to transmission lines. The Electricity Act 1992 allows Transpower to access lines in existence or under construction at 1 January 1988 for the purposes of inspecting, maintaining or operating them. The value of these statutory easements is not included in the valuation.

245. In accordance with the ODV Handbook, easements are only included in the valuation if the easements are:

- registered against title;
- paid for; and
- capitalised instead of expensed.

246. Only those direct costs that are capitalised are added to the assessment of the value of the easement land.

1. _____

[30] See "N.Z. Infrastructure Asset Valuation and Depreciation Guidelines – Version 1.0", April 2001

[31] 8th ed, page 115.

247. As the direct, capitalised cost of the easement reflects Transpower's financial interest in the easement there is little to be gained from adopting an alternative valuation approach.

A.60.2 Are there any access concerns in respect of getting new easements or access to existing easements?

248. In Transpower's experience, there are a number of issues that arise.

Reluctance to Grant Easements

249. Although by no means universal, individual land owners can sometimes be reluctant to grant easements. This can result in Transpower being required:

- To pay more to obtain the easement;
- Consider alternative or longer routes, both of which may involve additional costs.

250. Reasons for reluctance to grant easements vary:

- Reasons may be as simple as aesthetics or a reluctance to have a transmission line or other asset on the property;
- Particularly in urban settings, there is a concern about the perceived potential harmful effects of electromagnetic fields;
- In a rural setting, there is often concern about effect on stock or disruption to farming activities.
- Issues raised by forestry companies are fire risk, the cleared areas required for the line corridor and the cutting of access roads to the transmission line. Where the use of the land is for forestry, this tends to reflect in higher valuations and compensation for the easement.

Lineal Development

251. Transpower generally seeks easements for transmission lines, also known as "lineal developments" or "corridors". A feature of these developments is that easements will frequently be needed over a number of properties in different ownership.

252. Different land owners adopt different negotiating stances. Some drive harder bargains than others. Despite confidentiality agreements, compensation or the level of compensation is commonly disclosed to other owners. Transpower frequently finds that it has to top up compensation to a common rate. In some cases it has made it known to land owners generally that it will do so. What this means in terms of compensation, is that the amount paid to a particular land owner will not necessary reflect the compensation payable on a strict valuation basis.

253. It is a common experience that there is a ransom factor in acquiring the last property in a lineal development and the last property to be acquired is generally acquired at a margin over valuation. This experience is not limited to the electricity industry, but occurs with other lineal developments, such as gas pipe lines and roads.

254. Transpower has also experienced situations where, notwithstanding that there is an existing agreement to grant an easement, the owner has refused to grant access unless more money is paid. Sometimes this is merely opportunistic, but at other times, this reflects either knowledge or suspicion that an adjoining land owner may have been paid higher compensation. Again the effect is that the amount paid by way of compensation may not reflect a fair valuation.

Alternative Approaches

255. There have been extreme cases where the only solution for Transpower is to purchase the whole property, and in one case, relocate the owner to another property, which Transpower was also, obliged to buy. In such cases, Transpower built its transmission line, surveyed off the required easement, and resold the land subject to the easement. The cost of this process can bear little resemblance to the cost of simply acquiring an easement.

Maori Land

256. Transpower has encountered some reluctance from iwi groups and corporations to grant easements in perpetuity, which is the normal basis for purchase of an easement.

257. On occasions, there has been a view expressed by Maori that Maori land should be used only as a last resort, an approach that has been adopted by Maori interests in the current review of the Public Works Act.

258. Where iwi groups have been prepared to agree to grant an easement, documents are commonly modified to provide for:

- Review of operation at set intervals; and
- Review of compensation after a set period.
- In both cases this represents a departure from the normal basis of valuation.

A.61 What factors or considerations could provide a basis for different valuation approaches across different sectors?

259. Sectoral characteristics can influence the choice of valuation methodology in a number of ways. One of the major factors to be considered is the rate of technological change in the sector relative to the useful asset life.

260. In a sector in which innovation has resulted either in a decline in the real cost of service provision or is yielding consumer benefits, the use of replacement cost valuation methods will exacerbate the “bad news” principle. Regulated businesses will need to incorporate the possibility of “bad news” following an irreversible investment in their analyses supporting investment decision making. This “bad news” can take the form of a fall in asset replacement cost, and therefore, falls in prices, revenue and profit.

261. In contrast, there is no such exacerbation of bad news for firms regulated under the historical cost asset valuation methodology.

262. According to Professor Lewis Evans and Dr Graeme Guthrie[32], the historical cost approach will better provide greater certainty to investors relative to the replacement cost approach when the growth in cost is low, the systematic risk of cost is high, the correlation between cost and profit is low, the cost volatility is high, profit volatility is low, and inflation is low.

263. The significance of this view – that innovation will be accompanied by "bad news" effects should be considered in the context of the relatively low rate of technological change experienced by electricity lines businesses.

1.

[32] Lewis Evans & Graeme Guthrie, The Basis of Historical Cost and Replacement Cost Regulation for Networks with Sunk Costs: Application of "The Bad News Principle", New Zealand Institute for the Study of Competition and Regulation, Wellington, 2002.

8. International Practice

A.62 What lessons can be learned from international practice?

264. As noted at paragraph 8.21 of the Discussion Paper, international practice concerning the valuation of regulated electricity utilities assets is, to some extent, context dependent.

265. The valuation of system fixed assets was a major, and often contentious, issue in countries such as Australia and the United Kingdom when those assets were transferred from public to the private ownership and the services they provided were made subject to explicit regimes of regulatory control.

Australia

266. In implementing regulation for the National Electricity Market, the Council of Australian Governments expressed a preference for the use of optimised deprival values of fixed assets. ODV methods were, however, difficult to apply in practice as valuation required a knowledge of future regulated prices, but the determination of those prices required the valuation of fixed assets. This circularity was avoided with the use of ODRC valuations.

267. The practice in Australia has, by and large been to value assets that were being transferred to private ownership at ODRC.

268. Australian regulators have sought to justify ODRC valuations of fixed assets on the grounds that the use of this methodology is consistent with competitive market outcomes. ODRC is "the price that a firm with a certain service requirement would pay for existing assets in preference to replicating assets".[33] ODRC valuation is said to be "consistent with the price charged by an efficient new entrant into an industry, and so it is consistent with the price that would prevail in the industry in long run equilibrium"[34].

269. This competitive markets justification for ODRC valuation is, at least in the context of Australian regulatory practice, of doubtful validity for a number of reasons:

- Regulators have used straight line depreciation in applying ODRC valuation methods to establish initial regulatory values of fixed assets, in effect recognising the practical difficulties that arise with a more theoretical approach. However straight line depreciation is an accounting convention without economic meaning and without relevance to behaviour in competitive markets;
- In some cases, regulators have arbitrarily reduced ODRC valuations of fixed assets where they were of the view that previous owners had already secured a significant recovery of capital; and
- In other cases, regulators supported the arbitrary reductions of ODRC valuations made by government policy makers to ensure that prices charged by regulated businesses would not exceed the prices charged by their public sector predecessors.

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[33] Australian Competition and Consumer Commission, *Draft Statement of Principles for the Regulation of Transmission Revenues*, 27 May 1999, p. 39.
[34] Ibid.

270. Experience in the United Kingdom provides little to assist the valuation of the system fixed assets of a publicly owned enterprise like Transpower. The initial price caps in the electricity industry, and in other industries in which publicly owned enterprises were privatised, were not established by reference to costs, and there were no initial regulatory asset valuations. Asset valuation became an issue when the initial price caps (which applied for periods of around five years from the date of privatisation) were to be reviewed. Regulators, adopting cost of service methods for setting prices and price caps, required regulatory asset values and, as the Discussion Paper notes, these were established with reference to the stock market values of the privatised enterprises.

271. Initial valuation of regulatory assets has not been a major issue in the United States with its long history of regulated privately owned utilities.

272. Although there are important differences of context in international practice as regards the initial valuation of system fixed assets for regulatory purposes, there is a degree of consistency in the approach taken to new investment. In Australia, the United Kingdom and the United States, additions to the regulatory asset base are usually recorded at historical cost, or at indexed historical cost.

9. Implementation and Operational Issues

A.63.1 To what extent are the implementation and operational issues identified by the Commission relevant and, if so, to what extent for each valuation method?

273. The following tables summarise Transpower's view of the relative impact of the operational issues identified by the Commission for the historical cost and replacement cost valuation methodologies. The first table refers to opening value. The second table refers to the on-going value.

A) Opening Value	***Historical Cost***	***Replacement Cost***
Coinciding with regulatory monitoring	*Difficult* *(Does not exist)*	*Easy* *(Already in place)*
Alignment with existing records	*Difficult* *(Requires reconciliation and reconstruction)*	*Easy* *(Already in place)*
Design, implementation and resourcing of systems and processes	*Difficult* *(Requires new systems and processes to be put in place)*	*Easy* *(Already in place)*
Necessary level of prescription for regulatory purposes	*Difficult* *(Did not exist historically, only recent accounting standards have provided sufficient direction for capitalising assets on a consistent basis)*	*Moderate* *(The Handbook is already in place and compliance has been audited, however some changes are required to create a reasonable opening value)*
Time required to prepare and implement value	*Difficult* *(Does not exist, cannot recreate)*	*Moderate* *(Requires revision of recalibrated value to accommodate failings/errors in the Handbook)*
Requirement for independent experts	*Moderate* *(Requires review of values which have not been audited for many years)*	*Moderate/Easy* *(Requires independent expert approval, but the Handbook assists with this process)*
Provides for Economies of Scope	*Difficult* *(No economies of scope available as the value does not exist)*	*Easy* *(Process, systems and source data already exists)*

274. In relation to opening values, Transpower's view is that a replacement cost valuation would be significantly easier to implement and operate than an historical cost valuation.

B) On-going Value	***Historical Cost***	***Replacement Cost***
Design, implementation and resourcing of systems and processes	*Moderate* *(Requires new systems and processes to be put in place, but able to utilise existing information such as project spend)*	*Easy* *(Already in place)*
Necessary level of prescription for regulatory purposes	*Easy* *(Accounting standards provide direction for capitalising assets. New investment contracts and Part F requirements insure against over investment)*	*Moderate* *(The Handbook is already in place and compliance has been audited, however some changes to the Handbook are required to ensure a reasonable on-going value is achieved)*
Time required to prepare and implement value	*Moderate/Easy* *(Requires initial change to annual processes for recognising asset additions and disposals)*	*Moderate* *(Requires regular revisions to Handbook and on-going implementation of revised approaches)*
Frequency of valuations for regulatory purposes	*Moderate/Easy* *(Depends on regulatory assessment period)*	*Moderate* *(Depends on regulatory assessment period, external regulatory review should coincide with this)*
Requirement for independent experts	*Easy* *(There will be no additional requirements if the prudency test is aligned with Part F)*	*Moderate* *(requires independent expert approval, the Handbook assists with this process)*
Provides for Economies of Scope	*Easy* *(all Transpower's asset management, price setting, financial reporting and performance monitoring processes are interlinked with the regulatory value, whatever that may be)*	*Easy* *(all Transpower's asset management, price setting, financial reporting and performance monitoring processes are interlinked with the regulatory value, whatever that may be)*

275. In relation to on-going values, the historical cost approach is preferred. While there are implementation and operational issues with each of the methodologies of the ongoing requirements of ODV tend to be more complex. In addition, the historical cost provides relatively straightforward solutions to the new investment issues raised in section 6.2.

A.63.2 Are there any other implementation and operational issues that should be identified and, if so, how significant are they?

276. There are no other major issues.

A.64 If DHC (or DIHC) were the preferred method for establishing the baseline valuation of electricity line business system fixed assets for regulatory functions under Part 4A, how could this be best achieved?

277. From Transpower's perspective, this would require estimation of a number. We would have to add back infrastructural expenditure and make a determination about what lines maintenance was capital as we have operated on an infrastructural approach to account for fixed assets. We may also have to make adjustments for the optimisations inherent in the existing value. It is not possible to use tax values as these vary significantly from accounting values due to the different principals applying to maintenance and capital expenditure.

A.65.1 Up to what time were historical cost-based system fixed asset records maintained?

278. Full historical cost records have been kept from 1998, but on an infrastructural cost basis. These are not directly comparable to a traditional historical cost basis of valuation for the reasons outlined in the response to Question 64 above. Prior to 1998, records are insufficient to provide an historical cost-base value.

A.65.2 Are possible difficulties surrounding establishing a true historical cost-based opening valuation genuine concerns? How could these difficulties be overcome, if at all?

279. The level of estimation and transaction processing required to establish full historical cost records mean that the cost, size and value of the exercise is highly questionable, even were it possible.

A.66.1 If true historical cost could not be derived for the baseline valuation, is there a reasonable proxy for historical cost that could be used instead?

280. Again this is very problematic. The tax book value is the only alternative available. However this would not be an appropriate proxy as adjustments would need to be made for capital and maintenance allocations, divergent asset lives and depreciation rates. In addition, and most importantly there are no reliable dates for a large proportion of asset acquisitions.

A.66.2 What implementation issues might exist with a "reasonable proxy" approach?

281. As noted in the response to Question 66 above, records prior to 1998 are insufficient to provide an historical cost base value, but more importantly, Transpower does not have records for pre 1987 years, which is the period when the majority of Transpower's fixed assets were constructed. Historical records do not therefore exist for a reasonable proxy.

A.67 What implementation or operational disadvantages or pitfalls might exist if the latest ODV value of system fixed assets were used for the baseline valuation, with future assets included and accounted for in the asset base at DHC (or DIHC)?

282. This would require a change of accounting policy from a revaluation regime for financial reporting purposes. FRS-3 allows companies to stop revaluing fixed assets if a change will result in more relevant or reliable information or continual revaluations for that class of item cannot be justified for materiality or cost-benefit reasons. If a company ceases revaluing its fixed assets it can use the most recent valuation or restate its fixed assets as though it had always been accounted for at historical cost to account for fixed assets going forward.

283. The fixed asset register would have to be adjusted for economic value adjustments. In addition, the depreciation in the accounting fixed asset register is linked the ODV fixed asset register. If the ODV fixed asset register was no longer required the depreciation process would need to be modified, which may entail a review of useful lives of assets in the accounting fixed asset register.

284. Another issue concerns the treatment of pseudo assets as part of the ODV valuation process. Transpower has created pseudo assets in both the accounting and ODV fixed asset registers, the treatment of which under an historical cost regime would need to be determined.

A.68.1 Assuming it was possible to determine a baseline valuation for system fixed assets using a historical cost-based approach (or a reasonable proxy for historical cost), what implementation issues might arise in attempting to align the detailed (ODV) asset records with the baseline valuation?

285. It depends on whether the valuation is calculated at a component or a global level. If it is calculated at a global level, significant time would be involved in apportioning costs across assets. Given that the historical records do not exist to derive a detailed component level value, there would be difficulty in assigning a depreciated value which aligns with the depreciation profile of the existing ODRC asset base, based on the building block components contained in the ODV Handbook. There is additional complexity associated with the infrastructure accounting approach being used in the past, as expenditure that would otherwise have been capitalised is expensed under this approach.

A.68.2 How could any implementation issues be satisfactorily addressed?

286. Over a period of time, estimates may be able to be made to provide the valuation basis sought. This would, however, involve a lengthy process with no guarantee of a reasonable outcome. Also, to satisfy FRS-3 the historical cost valuation would need to reflect the depreciation of assets from acquisition. Acquisition details do not exist for assets constructed prior to 1987.

A.69 What would be the implementation and operational implications for accounting systems and processes if regulatory asset valuation required an historical cost-based approach (DHC or DIHC)? How could the implementation issues be satisfactorily addressed and in what timeframe?

287. These issues are discussed in the responses to Questions 64 to 68 above. Transpower considers that it would be difficult, if not impossible to overcome the implementation issues associated with using historical cost to establish a baseline valuation (or a reasonable proxy).

A.70 To what extent should the valuation method (DHC, DIHC, DRC, ODRC, or ODV) be prescribed by the regulator?

288. We refer to Transpower's response to Question 48 above, in the context of the ODV valuation methodology, and the ODV Handbook.

289. Whatever valuation methodology is chosen, it must be carefully and precisely prescribed in the necessary degree of detail. I It must also be given regulatory force. This can be achieved under Part 4A of the Act through the Gazette notification procedures contemplated by both Section 57G (in respect of setting the thresholds) and Section 57T (in respect of information disclosure).

290. The level of detail prescribed should be analogous to the existing level of detail provided in the ODV Handbook, relative to the nature of the chosen methodology.

A.71 If the ODV method were adopted for regulatory purposes, is the Handbook for the prescribed ODV method adequate, or are changes required?

291. The ODV Handbook must be updated in the following ways:

- The building block definitions are outdated. A number of building blocks commonly in use on the Transpower system have been added to our ODV as "non-standard" building blocks over recent years. These need to be incorporated into the Handbook.
- The building block replacement costs are outdated. These have not been updated since 1998, and no longer represent replacement cost for Transpower's assets. For example, costs for some common transmission line building blocks (refer to Transpower's response to question A.49) have increased by between 12% and 25%.
- Maximum asset lives for each asset component must be reassessed on the basis of current experience. This is particularly true with respect to lives for some switchgear, and revenue metering.

- The granularity of transmission line building blocks should be reviewed, as the building block components have differing remaining lives (i.e. structures and foundations have relatively long lives while conductors and circuit breakers have shorter lives). This would give greater effect to the ODV Handbook's refurbishment provisions, and provide for a more accurate depreciation calculation.
- The process of assessing the remaining lives for assets should be reviewed to include appropriate allowance for reducing or extending remaining lives based on condition, technological change or service potential. This is also required to remove the current anomaly where assets which have been fully depreciated but are still in use, are assigned a nil value.

292. A new handbook would also need to resolve the issues raised by Parsons Brinckerhoff, and Transpower, discussed in section 6 above.

293. Finally, a number of the clauses in the ODV Handbook reflect terminology and conditions more appropriate to distribution networks, not the transmission system. These occur throughout the ODV Handbook, but in particular in the optimisation and economic valuation sections. Improved application of the ODV Handbook would be achieved following a review of the suitability of its requirements from the perspective of a transmission system. In particular, a distinction needs to be made between those clauses relevant to distribution networks. Where necessary, additional clauses should be added for the transmission system.

A.72 In respect of historical cost-based asset valuation approaches, could reliance on accounting standards (particularly FRS-3) and conventions be relied upon to ensure consistency or comparability of valuations?

294. Reliance could be placed on FRS-3. However, FRS-3 is applicable to all businesses rather than specific to electricity line businesses and therefore does not address all the relevant issues. In particular various interpretations can be given as to the appropriate approach to:

- Treatment of capital and maintenance costs;
- Determining useful lives;
- Assessment of surplus capacity and obsolescence;
- The treatment of life achieving and life extending activities; and
- What elements of cost are included in the cost base.

A.73 What implementation period would be necessary for implementation of the different valuation methods? What factors would influence the amount of implementation time needed?

295. Refer to the response to Question 63 above. A number of complex issues need to be resolved in order to implement either of the valuation methodologies. Given these issues, it would be difficult for Transpower to conduct a valuation under a new (or substantially revised) valuation methodology prior to June 2004.

A.74.1 What factors are relevant to deciding the appropriate period between system fixed asset (re)valuations for regulatory purposes?

296. As noted above Transpower's preference is for an historical cost valuation approach, which implies no ex post revaluations.

297. To the extent the Commerce Commission continues to employ an ODV approach, or adopts an ODRC methodology, asset revaluation should take place only after relatively long intervals. This would reflect the nature of the electricity industry that is characterised by long-lived assets with low rates of technological change.

298. In Australia, the ACCC has considered a similar issue with respect to ODRC (alternatively expressed as DORC), and has considered that it: [35]

> "…may not need to consider a full DORC every regulatory period although there may be a case every ten years. The potential triggers for reassessment of the RAB (regulated asset base) include:
>
> - A major advance in technology such as the development of new materials;
> - Mergers or changes of ownership of transmission assets;
> - Major expansions or contractions of the network such as may arise due to the development of a bypass option;
> - Evidence that the TNSP (transmission network service provider) is unable or unwilling to recover the full cost of service calculated for some sub-system;
> - A request by the TNSP facing bypass for a significant write-down of parts of its asset base.
>
> It is clear that the Commission cannot set precise criteria for when a revaluation will be required as this will require some judgement."

A.75 Should independent financial and engineering experts continue to be required to approve valuation reports?

299. Independent verification of valuations is common practice for a number of purposes including; rating, financial reporting, acquisitions, funding and regulation purposes. The use of independent experts enhances the accuracy of valuations, providing an internal discipline on ELBs in the preparation of valuations.

300. Where valuations are prepared by employees of an entity, FRS-3 requires the basis of valuation to be subject to review by an independent valuer.

301. The requirement of external auditors to approve the valuations formalises the audit function for regulatory purposes and places explicit requirements on the auditor to understand the requirements for and certify compliance with the "regulatory" valuation, as opposed to valuations prepared for other purposes, such as financial reporting.

A.76.1 What are the advantages and disadvantages of using a common auditor across all electricity lines businesses?

302. There are a number of issues with using a common auditor. These include resourcing issues, confidentiality issues, and commercial sensitivities.

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[35] Australian Competition and Consumer Commission, op. cit, p. 49.

303. As lines company information disclosures are with the exception of Transpower made on or before the same date each year, significant resource demands would be made on a single auditor.

304. The risk of an inadvertent breach confidentiality or release of commercially sensitive information is increased with a single auditor. At present, were such a breach of confidence to occur an ELB would at least have the option of changing auditors.

305. The use of one auditor does not necessarily guarantee consistency in approach. For example in the recent asset recalibration audit undertaken by the Commission and its consultants, a number of different audit teams worked around the country at the same time to meet the project deadlines.

306. The potential disadvantages to the use of a common auditor suggest that the use of a small number of approved auditors may be appropriate. The potential advantages of this later approach include:

- Avoiding the institutionalisation of one firm's views through accessing the approaches and views of a small group of firms, thus achieving "best practice", with each auditor providing a cross check on the others;
- Avoiding bottlenecks resulting from one auditor auditing the entire distribution and transmission sector, potentially leading to errors resulting from unreasonable time pressures; and
- Better managing commercial sensitivities around the valuations and the regulatory audit role.

A.76.2 Should this process be undertaken by the Commission?

307. It is not reasonable to expect the Commission to retain the required industry knowledge and technical expertise in-house to undertake a periodic specialist function. The Commission's role should be to manage the process, but it should be able to engage qualified and experienced experts to assist it in this role.

A.77.1 What work do auditors currently perform under the electricity information disclosure regime in respect of system fixed assets?

308. Auditors currently verify source data, including sample checks of this data. They understand the methodology applied and the underlying assumptions used and check for compliance with the regulatory requirements. Auditor also verify the professional competency and objectivity of external valuation experts and confirm that the scope of work undertaken by the expert is adequate for audit purposes.

309. Regulation 31(4) of the Electricity Information Disclosure Regulations 1999 requires an Independent Auditor to provide an opinion in Form 3 as to the valuations prepared in accordance with Regulation 20.

310. Regulation 20 specifically covers the valuation report relating to the line business system fixed assets. The valuation report must be prepared using the ODV method as set out in the ODV Handbook.

311. The financial statements that must also be audited are required to be audited in accordance with generally accepted auditing standards in New Zealand.

312. As the financial statements include both the value of the system fixed assets and the value for the depreciation on system fixed assets, it is implicit that the audit of the method used in obtaining these values would also accord with generally accepted auditing standards.

313. If not, Form 3 should be amended to state:

> In my/our opinion, having made all reasonable enquiry, to the best of my/our knowledge and *in accordance with generally accepted auditing standards*, the valuations contained in the report, including the total valuation of system fixed assets of [*insert value]*, have been made in accordance with the ODV Handbook.

A.77.2 How does this audit work compare with audits carried out for statutory financial statement purposes?

314. As New Zealand has one set of accounting standards that apply to both public and private entities, audits under either the Electricity (Information Disclosure) Regulations 1999 and the Financial Reporting Act 1993 must be conducted according to the same Codified Auditing Standards.

315. These Codified Auditing Standards include a requirement to consider laws and regulations in the audit of public sector entities:

> *Requirement to Consider Laws and Regulations in the Audit of Public Sector Entities* 18. Many public sector engagements include additional audit responsibilities with respect to consideration of laws and regulations. Even if the auditor's responsibilities do not extend beyond those of the private sector auditor, reporting responsibilities may be different as the public sector auditor may be obliged to report on instances of non-compliance to governing authorities or to report them in the audit report. Guidance on the auditor's reporting responsibilities contained in the audit mandate will determine the auditor's responsibilities.

316. In the case of financial statements, an auditor must audit against generally accepted accounting practice and financial reporting standards. For example, FRS-3 would apply to system fixed assets and permits either the DHC and ODRC methods. If the Commission adopts the DHC method, the auditor's work will be the same as for financial statements generally. If the Commission adopts a replacement cost method, the auditor's work should be assisted by the equivalent of the current ODV Handbook.

A.77.3 Are the audit scope and audit work carried out sufficient?

317. If an historical cost approach is adopted, the standards implemented by the Financial Reporting Act 1993 are sufficient.

318. If a replacement cost approach is adopted, there should be a requirement that the auditor is subject to generally accepted auditing standards in verifying whether or not the valuation has been made in accordance with the Handbook that prescribes the replacement cost methodology.

A.78 What factors should be borne in mind when considering alternative valuation methods for Part 4A given that electricity lines businesses use system fixed asset valuations for other purposes?

319. The Commission should only consider those factors that are consistent with the statutorily prescribed purpose of the price control regime as set out in section 57E, and as reflected in the evaluation criteria identified by the Commission. In a strict sense, the fact that system fixed asset valuations are used for other purposes is therefore irrelevant.

320. This is particularly so given that the valuation methodology selected will be consistent for the purposes of the thresholds, declarations of control and information disclosure.

A.79.1 What are the costs associated with conducting a valuation under the different approaches?

321. The following table summarises Transpower's view on the relative costs of conducting valuations under the historical cost and replacement cost approaches.

Costs of Conducting a Valuation	*Opening Value*		*On-going Value*	
	HC	*RC*	*HC*	*RC*
Underlying Asset Register	*High*	*Low*	*Low*	*Moderate*
Audit/Expert Input	*High*	*Low*	*Moderate*	*Moderate*
Prescribing a Methodology	*High*	*Low*	*Low*	*Moderate*
Optimisation/Prudency Test	*Variable*[36]	*Low*	*Moderate*	*Moderate*
Additional cost to costs incurred for Financial Reporting purposes	*High*	*Low*	*Low*	*Low*

322. Transpower submits that the replacement cost approach represents the lowest cost approach to establishing an opening asset value.

323. Transpower submits that the historical cost approach represents the lowest cost approach for on-going asset valuations.

A.79.2 What costs would be incurred regardless of the methodology used?

324. The following costs that would be incurred regardless of the methodology used would arise from:

- Audit checks;
- Compilation of underlying asset data; and
- External review.

A.79.3 What costs are likely to be additional?

325. For opening values, determining the opening value is the major additional cost. Transpower is of the view that this is not possible on the basis of the information available.

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[36] This is largely dependent upon the nature of the optimisation/prudency test.

326. For on-going values, optimisation, and EV are additional costs associated with ODV in addition to regular reviews of the Handbook. Prudency testing is additional for the HC approach.

10. Comparison of Asset Valuation Methodologies

A.80.1 What are the pros and cons of limiting capital efficiency reviews to additions to the opening asset base?

327. Limiting the scope of capital efficiency reviews should reduce regulatory risk for investors. In theory this could lead to a lower required rate of return.

A.80.2 What level of cost savings could be achieved by limiting capital efficiency reviews to additions to the opening asset base?

328. Several components of the existing ODV framework contain an element of capital efficiency review: the identification of modern equivalent building blocks, optimisation and economic value testing. Economic value testing is discussed in detail in the response to Question 46 above.

329. Identification of modern equivalent assets provides a benchmark against which proposed investments and project costs can be compared. For example, for a site with significant load, the modern equivalent of 7x1 phase transformers (2 banks of three plus a spare) is two 3 phase transformers. Given the significantly lower cost of two 3 phase transformers it would be difficult to justify like with like replacement of a 7x1 phase installation.

330. However, much of the information gathered in specifying and updating modern equivalent building blocks is valuable from a project planning and capital budgeting perspective, and would be needed even if the ODV methodology was no longer being used.

331. On the other hand optimisation is carried out solely for regulatory valuation purposes.[37] The optimisation process is complex and resource intensive. The work is not only difficult to undertake; the need to maintain a distinction between optimised and physical asset configurations complicates valuation, pricing, investment and asset accounting processes.

332. The optimisation process and related activities currently require the equivalent of one and a half full time engineers. The cessation of optimisation would save Transpower in the order of $250,000 per annum including consulting, review and other costs.

A.81.1 What valuation methodology best promotes allocative efficiency?

333. As noted in response to Question 7, the choice of asset valuation methodology plays a relatively small part in support of allocative efficiency in the overall pattern of regulatory intervention.

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[37] However, it could be argued that as Optimised Replacement Cost (ORC) values form the basis for allocating connection charges under Transpower's sunk cost pricing methodology, optimisation would still be required.

334. However, as Professor Stephen King noted in the context of a review of an Australian gas access arrangement: [38]

> "To the degree that regulated asset valuations feed into uniform prices that exceed (congested adjusted short-run) marginal cost, either directly or further down the production chain, then the deviation of price from marginal cost will lead to a reduction in trade from the economically efficient level. Such a reduction leads to what economists call an "allocative inefficiency" or a "dead weight cost". It represents a decrease in gains from trade from the production and consumption of the relevant product(s) compared to the achievable level of gains from trade."

335. King has also separately argued in the context of examining the access regime that forms Part IIIA of the Australian *Trade Practices Act, 1974* that: [39]

> "If the Commission wishes to maximise the economic benefits from access then it will want access prices to be as low as possible, subject to the relevant assets remaining in use. The optimal rate base is provided by scrap value. A lower value will induce the facility owner to scrap the asset. But a higher value will result in higher access prices and will tend to reduce the economic benefits that can be achieved from the relevant final markets."

336. However, King identifies three major limitations of applying a "scrap value approach" to sunk assets: [40]

- It would send negative incentives for future investment because of the prospect of the regulator revaluing these new assets to scrap value in order to promote economic efficiency;
- "Using scrap value may be considered inequitable and unfair, both by the courts and the general public. A private investor would not have built (or bought) the facility if he had known that the Commission would, at a later date, only allow him to charge access to that facility to recover scrap value. Using scrap valuation is likely to result in only a negligible return on the initial investment, well below the investor's opportunity cost of capital"; and
- The likely political obstacles where assets are publicly owned.

337. King concludes by arguing in favour of an historical cost approach to asset valuation: [41]

> "The analysis presented in this paper broadly supports the use of historic or original cost asset valuation for access purposes. The arguments in favour of historic cost are impressive. It is administratively simple and transparent. It involves less subjective assessment and guess-work [than replacement cost approaches] and usually will involve adequate incentives for investment and equivalent

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[38] King, Economic Review of GSN Access Arrangements, IPART Research Paper, December 1998, page 18
[39] King, Asset Valuation and Access, Discussion Paper No. 365, The Australian National University, Centre for Economic Policy Research, April 1997, page 14
[40] Ibid, page 14
[41] Ibid, page 19

operational incentives compared with alternative valuation procedures."

338. Transpower submits that the historical cost approach is preferable to the current ODV methodology because it is "administratively simple and transparent", it provides for allocatively efficient outcomes, and in conjunction with Transpower's new investment agreements and Part F of the industry Rulebook, preserves incentives for efficient new investment.

A.81.2 Please provide comment in terms of the level, structure and time profile of prices.

339. Refer to the response to Question 8 above.

A.82 Could operational efficiency be improved by the choice of valuation methodology and, if so, how?

340. As mentioned in response to question 10 above, the role of asset valuation methodology in creating incentives for operational efficiency is limited by the fact that valuation essentially relates to sunk costs and therefore past performance, which the network business can no longer influence.

341. Notwithstanding this, while in theory an asset valuation methodology that incorporates the ability to revalue assets may provide some incentives for regulated businesses to identify and implement the most technologically efficient solutions, constant revaluation is impractical. In this context, it should be noted again that ODRC is based on the simplistic view that the regulatory revaluation process can replicate the revaluation process that occurs in competitive market. Refer also to the response to Questions 38 and 62 above.

A.83 How important is the ability to perform benchmarking to the choice of valuation methodology, particularly given the nature of system fixed assets?

342. Benchmarking performance has a role to play in assessing the productive efficiency of comparable businesses in most industries.

343. As in unregulated industries, some (but by no means all[42]) of the performance measures applied to regulated businesses depend on asset value.

344. For those measures that depend on asset value, the same types of difficulties will be faced whether the industry is regulated or not to the extent that asset value is arrived at using different methodologies and re-valued at different intervals by the different companies in the benchmarking exercise.

345. Overall, a methodology that involves real (as opposed to nominal) and replacement (as opposed to historical) asset values will provide a materially superior base for benchmarking studies. A consistent methodology will also provide a superior base for comparison over time.

346. In the electricity lines business, a number of other factors, including the physical differences between systems, would mitigate against the comparability of companies. Differences in asset valuation will add to the factors affecting the usefulness of benchmarking.

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[42] Examples of performance measures that do not depend on asset value include the length of installed pipeline per customer and installed transformer capacity.

A.84.1 What would be the financial and balance sheet implications for electricity lines businesses if profits or prices were constrained on the basis of a DHC (vesting value-based) valuation?

347. This question can only be answered in the context of a particular business.

348. If a business is assigned a DHC value by a regulator at a particular point in time, and that value is lower than the ODRC or ODV value that would have applied at the same time, then as the business needs to replace its assets at current prices it is likely to run into price shocks.

349. To the extent that the asset reserves are at a low level, the level of equity in the business may be such that it may be difficult to obtain debt financing to fund the new assets at replacement cost. As such, the business may require a further equity injection.

A.84.2 What would be the implications of constraining prices on the basis of current ODV values?

350. In principle this is not an issue for Transpower, as it's current pricing methodology is based on constraining prices to earn a fair rate of return on ODV values.

351. However, Transpower's responses to Questions 48 and 49 highlight a number of issues with the existing ODV methodology. These issues included:

- rule changes to address value loss on efficient new investments,
- re-introduction of minimum life adjustments,
- clarification of refurbishment provisions of the handbook,
- updating of modern equivalent replacement costs, asset lives and some building block definitions,

352. If the ODV methodology were to be used as a basis for constraining prices over the long term, these (and the other issues raised) would need to be addressed.

353. This is particularly true if ODV values are only to be used in establishing a baseline valuation, as the value impact of these issues would be institutionalised at the time the baseline valuation was established.

A.85.1 Are there any circumstances or considerations that would justify the regulatory valuation of assets above ODV?

354. There are a number of circumstances where regulatory asset values above ODV would be justified.

355. ODV building blocks are based on the concept of modern equivalent assets, with costs related to green-field, large-scale construction at an "average" site. Actual costs for a project will vary from these values, even when the building block values are "up-to-date". Variations can occur for a number of reasons, such as:

- Locational variations in costs;
- Minor differences in specifications of equipment;
- Costs associated with the incremental nature of most new investment (such as the removal of existing works, the need to maintain supply during construction, the small scale of an operation etc);

- Special requirements at the site (environmental and safety); and
- Other project specific factors.

A.85.2 Should investors in electricity lines businesses have legitimately expected to earn a return on any price paid above ODV?

356. Refer to the response to question 87 below.

A.86 How is the choice of opening asset values likely to effect investors' perceptions of regulatory risk (and therefore dynamic efficiency) going forward?

357. The choice of opening asset values is likely to have a substantial effect on investor perceptions of regulatory risk - see the response to previous questions, in particular Question 11 above.

358. It must also be noted that regulatory certainty (and the perception of it) is fundamentally important to future investment.

A.87 What inferences, if any, could electricity lines businesses reasonably have drawn as to the appropriate asset valuation methodology to be used for pricing, from the introduction of information disclosure in 1994?

359. The inferences, if any, ELBs would reasonably have drawn from the introduction of information disclosure in 1994 must be seen in the context of New Zealand's then "light handed" regulatory approach for networks and monopoly industries. This regulatory approach comprised three elements:

a. Reliance on the generic law, particularly on the restrictive trade practices provisions of Part II of the Commerce Act, to promote competitive outcomes;

b. Reliance on the threat of price control under Part IV of the Commerce Act; and

c. The requirements to disclose specified information.

360. In this context, information disclosure had a range of objectives:

a. Enabling benchmarking by customers and regulatory authorities of prices, costs and other elements of performance, in order to identify excessive prices or excessive costs;

b. Discouraging cross subsidisation between customer classes;

c. Strengthening the countervailing power of customers and facilitating negotiations with network or other monopoly service providers, by providing improved information on underlying costs and enabling price comparisons; and

d. Making anti-competitive behaviour readily apparent.

361. Information disclosure was implemented not only in the electricity industry (the Electricity (Information Disclosure) Regulations 1994) but also in the gas industry (the Gas (Information Disclosure) Regulations 1997), postal services (the Postal Services (Information Disclosure) Regulations 1998), in relation to airports (the Airport Authorities (Airport Companies Information Disclosure) Regulations 1999) and Telecommunications (the Telecommunications (Disclosure) Regulations 1990). The specific objectives of information disclosure varied between these industries, reflecting different policy concerns and technological characteristic, but were in general aimed at the objectives referred to above. Consistent with this, where the disclosure regimes required disclosure of asset values, it was made quite clear that tariff or price setting was independent of asset values; there was no regulatory requirement that prices be determined on the basis of the asset values as disclosed.[43]

362. Against this background, ELBs (other then Transpower) could not reasonably have expected that they should adopt the ODV methodology for any purposes other than information disclosure. However, once an ELB incurred the cost of an asset ODV valuation for information disclosure purposes (and as one or more ELBs adopted ODV for pricing purposes) it was inevitable that ELBs' would adopt ODV asset values for revenue setting purposes, given that their prices and profit performance were to be measured on this basis.

363. Transpower had this expectation from the outset, owing to the fact that its assets were transferred from the Electricity Corporation of New Zealand at ODV values. Transpower's pricing methodology therefore adopted ODV asset values from the outset, this having been mandated by Shareholding Ministers.

A.88 What impact might the introduction of Part 4A have had on investors expectations regarding asset valuation methodologies?

364. The introduction of Part 4A has modified investors' expectations in relation to asset valuation methodologies. The recalibration of ODV asset values required by Subpart 4 was clearly a short term measure to ensure strict compliance with the current ODV Handbook, given the ELBs' practice of pricing on the basis of ODV and anecdotal evidence of the ramping up of ODV values.

365. The debate concerning the appropriateness of the ODV method was reflected in the inclusion of sections 57ZD and ZE in Part 4, which require a review of asset valuation methodologies.

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[43] See in relation to the electricity industry, for example, the ODV Handbook for Transpower (1994), page iii.

366. Those sections make it clear that the use of the ODV methodology for information disclosure purposes, the transfer of assets to Transpower at ODV and the ODV recalibration under Part 4A, cannot be seen as an endorsement of the ODV method. The Commission's preferred asset valuation methodology for the air field assets and the requirement to review valuation methodologies for ELBs in Subpart 4, make it quite clear (to Transpower at least) that investors cannot have any expectation that the ODV method will continue to be applicable to ELBs. Furthermore, if the Commission decides to adopt an historical cost valuation methodology for future investments for consistent application (regardless of the asset valuation methodology used for opening balances), there will be no increased investors' perceptions of regulatory risk in New Zealand sufficient to raise the cost of capital or to deter investment.

367. In summary:

- The process contemplated by Part 4A expressly included both the asset valuation recalibration exercise (on the basis of the existing ODV Handbook), and the review of asset valuation methodologies as contemplated by Subpart 4 of Part 4A;
- The review of asset valuation methodologies is to follow the procedure set out in section 57ZE. Investors would have been aware of both the wider purpose of the Commerce Act (as amended) and the specific purpose of the electricity price control regime itself as stated in section 57E. While investors may have formed their own judgements (as the Commission has in the Discussion Paper, without taking a final view) for the choice of asset valuation methodology, they could have no expectation that the ODV method will continue to apply.
- Investors will also have been aware (and consequently had the expectation) that the final judgement was for the Commission at the conclusion of the prescribed process, and acting in accordance with its interpretation of its statutory purpose.

A.89 Which valuation methodology would best promote dynamic efficiency?

368. Any valuation methodology that provides reasonable certainty regarding the value of sunk assets (i.e. that does not involve optimisation) will tend to promote dynamic efficiency. The reasons were addressed in our response to Question 11 above.

A.90 To what extent is optimisation required in the case of the system fixed assets of electricity lines businesses?

369. As discussed above, provided *ex ante* efficiency reviews are undertaken, it is not generally appropriate to optimise the asset base on an *ex post* basis. There may be some question of initial capital efficiency reviews but not subsequent optimisation once the investment occurs.

A.91 To what extent is this optimisation being undertaken through the application of the current ODV Handbook?

370. Transpower's annual report includes the Efficient Allocation of Capital Index (EACI). This index, calculated as the ratio of optimised replacement cost to replacement cost (ORC/RC), is a high level indicator of the extent to which the physical assets have been optimised.

371. Generally assets are optimised down rather than out, reflecting the fact that historically capacity planning has taken a longer term view than the ten years currently allowed in the ODV Handbook.

372. In Transpower's 2002 Annual Report the EACI was reported as 83%, a slight increase over 2001. This reflects increased utilisation of the grid as its load grows over time.

A.92 Have electricity lines businesses earned excessive profits in the past?

373. Transpower's pricing methodology ensures that over time economic profits (expressed as a rate of return) are identically equal to the weighted average cost of capital.

374. Transpower has not undertaken any analysis of whether other ELBs have earned excessive profits in the past.

A.93 How have revaluations gains been treated by electricity lines businesses in the past?

375. Transpower revalues its transmission assets in June each year using the ODV methodology. The annual asset revaluation is part of the economic return to shareholders. The revaluation gain (or loss) is added to net operating profit after tax to determine the total return achieved on operating capital in the period.

376. On the principle that customers should only pay for efficient costs, there are some elements of the economic value loss or surplus that should remain with the shareholder and not be attributed to the customer.

- Revaluations arising from nominal increases in replacement costs (inflation), movements in exchange rates, real cost increases and minimum life adjustments are attributed to the customer. For example, increases in the value of HVDC link assets due to devaluation of the New Zealand dollar have been treated as economic value gains, and where appropriate these have been returned to customers.
- Revaluations arising from optimisation of assets, re-specification of MEAs and economic value write-downs are attributed to the shareholder. For example, optimisation is based on the principle of "replicating the system … in the most efficient way possible from an engineering perspective…"[44]. Economic losses from optimisation should be borne by the shareholder, and are therefore not recovered from customers.

377. Transpower does not have any information on how other electricity line businesses have treated revaluation gains (losses).

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[44] ODV Handbook, paragraph 2.6, page 14.

A.94 How should the issue of consistency (including the treatment of revaluation gains) influence the choice of asset valuation methodology?

378. The issue of consistency should be one of the key criteria for assessing asset valuation methodologies, both in terms of consistency across the regulatory approach and consistency across time. As is noted on page 95 of the Discussion Paper, both ODV and DHC valuation methodologies can result in normal returns being earned over time, so long as they are applied consistently over the life of the asset. Inconsistency, introduced by changing asset valuation methodology, may lead to prices which yield either excess or inadequate returns.

A.95 How would the Commission's choice of opening values affect the profile of expected returns under different valuation methods into the future?

379. Refer to the response to Question 8.

A.96 Can both ODV and DHC valuation methods deal with the issue of excess profits? What factors should be looked at in determining whether each valuation methodology has been applied consistently over time to avoid excessive profits?

380. In principle both ODV and DHC valuation methods, properly and consistently applied, can be used to establish asset values that can then be used in the measurement of excess profits.

381. As mentioned in our response to Question 12 above, the identification of excess returns should not be a key criterion or driver for selecting a valuation methodology.

A.97.1 When using a nominal WACC and a replacement cost methodology, should gains due to inflation be treated as income in the year after they occur?

382. Transpower currently treats revaluation gains and losses as part of its economic gain or loss in the year in which the revaluation occurs.

A.97.2 Could they be spread over a number of years?

383. Economic gains or losses from revaluations could be spread over several years in order to prevent “non-cash” items leading to a technical breach of revenue or price path thresholds.

384. As part of Transpower’s revenue requirement methodology, a portion of the balance of the accumulated economic gain (loss) account[45] attributable to customers is returned to customers through economic value adjustments to the following year’s charges.

A.97.3 What are the difficulties with this approach, e.g., could there be a 'spiralling up' of moneys that have to be redistributed to customers in later years?

385. While there is a possibility that moneys to be redistributed to customers could “spiral up”, this can be avoided relatively easily by establishing appropriate limits on how much of the outstanding balance to return to customers each year.

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[45] From monopoly activities.

A.97.4 Would interest need to be charged on this outstanding amount?

386. If economic gains or losses from whatever source are to be carried forward from period to period, interest should be charged on the outstanding balance (surplus or deficit). Transpower currently charges itself interest on the balance of the customer economic gain (loss) account, with the interest level set based on the cost of equity.

A.98.1 How difficult would it be to obtain a valuation based on a "pure" historical cost valuation?

387. Obtaining a pure historical cost valuation would be virtually impossible, refer to the response to Questions 98.2 and 98.3.

A.98.2 How difficult would it be to obtain a valuation based on book value at vesting plus additions and deletions valued at historical cost?

388. This would be extremely difficult. Transpower only has complete data from 1998 onwards, and this is influenced by the infrastructural accounting approach adopted by Transpower in recent years.

A.98.3 Is the information available from separation or more recently?

389. Due to changes in information systems, complete data on asset additions and disposals are only available back to July of 1998.

A.98.4 Does the quality of information available preclude the use of any opening valuation methodology?

390. Data availability and data quality issues prevent the use of the Historical Cost approach for establishing an opening asset valuation.

A.99 On balance, what is the preferred methodology for opening valuations of distribution businesses system fixed assets? Please comment on the relative importance of the factors considered by the Commission and any other factors considered relevant.

391. This question is not applicable to Transpower.

A.100 On balance, what is the preferred methodology for future valuations of distribution businesses system fixed assets? Please comment on the relative importance of the factors considered by the Commission and any other factors considered relevant.

392. This question is not applicable to Transpower.

A.101 On balance, what is the preferred methodology for opening valuations of Transpower' s system fixed assets? Please comment on the relative importance of the factors considered by the Commission and any other factors considered relevant.

393. Transpower believes it would be virtually impossible to construct an historical cost valuation for Transpower's system fixed assets. The reasons for this are elaborated on in the response to Questions 64 to 66 and 98 above, but to summarise:

- The data necessary to construct an historical cost valuation is incomplete or unavailable prior to 1998.

- Data that is available has been generated while Transpower was using an infrastructural accounting approach. Expenditure since the inception of infrastructure accounting would need to be analysed in detail to determine its treatment under an historical cost valuation regime.

394. The costs of attempting to establish an historical cost valuation for the sunk assets are considered prohibitive.

395. Using ODV represents a cost-effective way of obtaining a sunk cost valuation. However, there are several alternative ODV valuations that should be considered.

- Transpower's vesting value. Historical cost estimates would still have to be made for the period to from 1994 to the present, so this approach is likely to have the same cost and feasibility issues as an historical cost approach, so is not consider further.
- The re-calibrated June 2001 ODV valuation for Transpower published in March 2002.
- The soon to be released June 2002 ODV valuation for Transpower which is to be published on or before 30 November 2002.
- A new ODV valuation based on a revised (fifth edition) ODV Handbook.

396. Given the number and the materiality of the issues Transpower, and the Commission's auditors have raised regarding the fourth edition of the ODV Handbook, Transpower believes that it would be inappropriate to use the either the recalibrated June 2001 ODV valuation or Transpower's June 2002 valuation.

397. The Commission should look to establishing a more robust set of ODV rules, addressing the issues raised in Transpower's response to Question 48, and recognising that, unlike previous ODV valuations, the method will be applied on a once only basis[46].

A.102 On balance, what is the preferred methodology for future valuations of Transpower's system fixed assets? Please comment on the relative importance of the factors considered by the Commission and any other factors considered relevant.

398. Transpower considers that dynamic efficiency and identifying excess profits are the most important of the criteria put forward by the Commission. Cost effectiveness is also important, but it is secondary to dynamic efficiency.

Dynamic Efficiency

399. Both the historical cost and replacement methodologies are capable of producing dynamically efficient outcomes.

400. To achieve this with a replacement cost methodology the disincentives created by asymmetric risks (the "bad news" principle) must be addressed, either through adjustment of the allowable rate of return, or through some alternative form of compensation. In addition the current ODV Handbook would require some specific changes to ensure it provides incentives for efficient new investments (such as transmission line upgrades).

1. _____

An historical cost methodology would provide dynamically efficient outcomes by ensuring that Transpower could invest with certainty, while the operation of Part F of the EGB Rulebook would ensure that the level and cost of those new investments were appropriate. This approach avoids the creation of asymmetric risks, allowing for investment to be undertaken in a timely way, in response to changing customer demand. This property would be lost if historical cost values were subject to ex post prudency reviews – for example, through optimisation.

Identifying Excess Profits

401. To ensure that the price control regime can identify excess profits the chosen valuation methodology must be:

- Relatively objective;
- Simple in its application; and
- Be able to be implemented and interpreted consistently.

402. An historical cost valuation methodology, based on current accounting standards, including FRS-3, provides:

- Relative objectivity, because the standards, developed by appropriately qualified professionals are already in place. There is no requirement for the engineering judgement required under ODV to specify MEAs, conduct EV assessments and optimise the system configuration. Where engineering judgement is required, it will be subject to the commercial discipline of contractual negotiations and Part F of the EGB Rulebook.
- Simplicity, because: project costs for new investments are easy to identify; there is no need for a handbook or for complex processes needed to update replacement costs; businesses will only need one set of systems to comply with both sets of regulatory requirements.
- Can be interpreted consistently because the methodology is aligned with generally accepted accounting practice.

403. In short, Transpower prefers the historical cost approach for on-going asset valuations because it is administratively simple and transparent. It involves less subjective assessment and guess-work than replacement cost approaches and, with the disciplines inherent in new investment contracts and Part F of the EGB Rulebook, will provide adequate incentives for efficient investment.

Appendix

Paragraphs 2.23 to 2.25 of Transpower's 15 June Submission on the Commerce Commission's Issues Paper on the Review of Asset Valuation Methodologies

A.7 What are the pros and cons of each valuation methodology? How important are these in the context of the regulation of electricity lines businesses?

2.23 The merits of each valuation method should be considered in the context of the purpose of the review as set out in paragraph 1.1 in response to question A1.

2.24 As explained, the purpose statement for Subpart 1 is particularly important. Hence, the methodologies should be evaluated with respect to:

a. Limiting excess profits- the valuation, in conjunction with the other components of the information disclosure regime, should allow identification of whether firms are earning monopoly profits;

b. Efficiency- the valuation should achieve efficient outcomes. The methodology should provide strong incentives for investors to identify least cost outcomes, while allowing full recovery of the economic costs of efficient investments. In essence, the valuation methodologies should be compared by reference to the incentives they create for investor, customer and regulators and the impact of these incentives on allocative, productive and dynamic efficiency;

c. Consumer demand - the valuation method should reflect the impact of changing consumer demand, and should provide incentives for investors to efficiently meet consumers requirements for security and quality of supply;

d. Sharing of efficiency gains- asset values should reflect changes in technology and asset management practices; and

e. The purpose statement for Subpart 3 (Section 57T) implies a fifth criteria, consistent definition. The valuation treatment across companies should be consistent to ensure transparency in information disclosures and to facilitate cross company comparisons. In addition, the chosen valuation methodology should provide the most efficient outcome over the widest rage of relevant assets or investments, and valuers should be able to apply the methodology without constant reference to the regulator.

2.25 The following points are also relevant:

a. valuation should be considered separate from pricing;

b. the extent to which a valuation methodology creates risks for investors and customers; and

c. the extent to which a valuation methodology can be applied in practice (e.g. historical cost methodologies may not be practical because cost data will be lost given the age of many distribution and transmission assets), and cost of applying any particular methodology: see for example section 3.2 of Transpower's August 2001 submission on the Commission's draft report Price Control Study of Airfield Activities at Auckland, Wellington and Christchurch International Airports.